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ABSTRACT

The nine reports contained in this monograph describe in some detail projects to improve instruction initiated in 1974 at Memphis State University. The initial pages describe the criteria used to select the programs for funding. The nine projects fall into five areas: 1) computer-based instruction; 2) video technology; 3) individualized instruction and competency-based instruction; 4) development of instructional modules; and 5) simulation and gaming. (EMH)

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Innovation and Improvement in Instruction

Edited By
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Memphis State University
Memphis, Tennessee

IR 003 582

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PREFACE

In recent years a number of institutions have encouraged their faculties to improve instruction by means of providing small grants to faculty members to carry out promising proposals for instructional improvement. A program of this type was initiated at Memphis State University early in 1974. The nine reports contained herein describe the projects that were conducted during the first year of the program.

The procedure for selecting projects consisted of asking full-time faculty members, who desired to do so, to submit proposals which they felt would lead to facilitation of learning in their courses, and perhaps elsewhere. It was anticipated that resources available to support such projects would not be sufficient to support all of the proposals that would be submitted. It was also felt that it would be helpful to the faculty members to know in advance the basis on which projects would be selected. Therefore, the invitation to submit proposals contained a list of seven criteria which formed the basis for selection of the projects that were included in the program, and are reported herein. The criteria were as follows:

1. First and foremost, the proposed project should have a good probability of improving learning in the course in which it was undertaken. Stated differently, the basic concept or idea should be sound and capable of effective implementation.

2. If successful, the prospect for continued use of the improvement in the course in which the project was conducted should be good.

3. Projects having a probable "multiplier effect" would tend to receive preference. One aspect of this is the number of students whose learning would be affected. Thus, undergraduate courses having several sections would be good prospects. Another aspect of a "multiplier effect" would be the extent to which improved learning demonstrated in the course in which the project was conducted could be generalized to a broader spectrum of university courses.

4. The effects of the project should be capable of adequate measurement. Upon completion of the project it is desirable to know

to what extent the objectives of the project were achieved, together with any favorable and unfavorable side-effects.

5. The project should be more appropriate to the purpose of this small grant program than to other university sponsored programs. For example, projects which test hypotheses concerning the basic nature or conditions of learning were viewed as more appropriately supported by grants for faculty research than by this program. In the case of the present program the necessary basic knowledge already should be available, and the probability should be good that it could be applied to bring about improvement in learning.

6. Instances in which any required faculty released time could be provided by the academic departments concerned, leaving support of other requirements of the project to the small grant program, would receive some preference over projects that required a major part of the grant for salaries.

7. Insofar as practicable, different types of projects, and projects from a number of different departments, would be selected.

Each of the proposals contained a proposed budget which listed the type of support that would be required, and the amount of each item. The budget for most of the proposals ranged from $350 to $1000. Budget items that were included in one or more project proposals included expenses for: supplies, equipment, released time for the faculty member, salaries for student assistants, travel, and funds for such services as clerical, photographic, and printing. As it turned out, the nine projects fell naturally into five areas: computer based instruction, video technology, individualized instruction and competency based instruction, development of instructional modules, and simulation and gaming. These five topical areas will be recognized as the five parts into which the monograph is divided. Each of the areas or parts is preceded by an introduction in which the editor describes the general context of which the specific projects are a part. In most instances the introductions also serve to give a very brief preview of what will be found in that particular part of the monograph.

The program of small grants to facilitate learning is administered by the Center for Learning Research and Service. In addition to providing monetary support for approved budget items of the projects, the Center also assists the faculty members conducting each project, to the extent that they desire, in several areas in which the Center purports to have special competence. These areas include systematic course development, development of instructional aids, applications of educational technology, and design of evaluation plans.

As noted initially, the projects reported are those that were conducted during the first year of the program of small grants to facilitate learning. This program is continuing at Memphis State University on a slightly expanded basis and gives evidence of continuing to achieve excellent results. The publication of the reports on projects conducted during the first year in the form of a monograph is, to a degree, experimental.

Publication of a similar document in subsequent years will be influenced by the acceptance of the present monograph and the value that it appears to have, both from the standpoint of stimulating interest in instructional improvement and its value in terms of according recognition to faculty members who exert extra effort to do an improved job of teaching.

As editor, I wish to acknowledge the very obvious contribution of each of the contributors to the monograph, whose names are listed in the table of contents. A vote of thanks also is due to all members of the Center for Learning Research and Service for their constructive participation in a number of the projects, and in particular to Mrs. Marge Sanderson, who handled the business aspects of each of the projects and assumed significant responsibilities in the preparation of the manuscript. Finally, the program of small grants to facilitate learning has received strong support from the top administrative officials of the university, including, especially, the office of the Vice President for Academic Affairs and the Dean of each of the colleges. This support and the support of Dr. Lester Pourciau, Director of Libraries, in proposing that the composite report of the projects be included in the John Willard Brister Library Monograph Series, were especially instrumental in bringing the monograph to fruition.

G. Douglas Mayo, Director

Center for Learning Research and Service

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PART I

COMPUTER BASED INSTRUCTION

INTRODUCTION

There are a number of ways in which computers may be used to facilitate instruction. One of the better known ways is computer assisted instruction, in which a computer acts essentially as a tutor to each individual student. In this type of instruction the computer is programmed to provide the student with as nearly optimal material at each point in his learning as the designer of the computer based instructional system is able to provide. The student is interacting with the computer on a continuous basis, and requires the use of a computer terminal throughout the period of instruction. In a similar type of instruction, known as computer managed instruction, the computer is programmed to monitor and direct the student's progress, but the actual instruction takes place off-line from the computer by means of printed material and audio-visual devices. In different, but related areas, computers may be used to good advantage in both test construction and test analysis; they are well suited to simulation of a wide range of situations and problems. Computers have excellent capabilities in the generation of graphics, and their ability in the area of computation is generally recognized. It is these last two capabilities that are utilized in the project that was conducted by Drs. Momany, Ford, and Zuber.

The investigators knew from an initial survey of the field that a number of computer based instructional programs in physical chemistry had been developed at several colleges and universities in different parts of the country. They reasoned that, if the originators of these programs would permit their use, the programs could be adapted to the undergraduate physical chemistry course at Memphis State University with relatively little effort. As it turned out, the originators of the programs were most generous in providing them to Dr. Momany and his group and assisted in their use in every way that they could. Most instructors prefer not to take a course or segment of a course, developed by someone else, and use it without some adjustment and adaptation. Usually a course developed elsewhere does not fit local conditions and objectives perfectly, and requires some degree of modification. This was true in the present project, as will be described in the following report, but a very large proportion of the work already had been done, and the adaptation could be accomplished rapidly.

The work described herein has now been integrated into the regular undergraduate course in physical chemistry. In addition, the project stimulated sufficient interest on the part of faculty members who were teaching the introductory course in general chemistry that they asked the project director to assist them in developing computer applications for testing and other aspects of that course. This work is moving forward with very good results in prospect at the present time.

COMPUTER CONTROLLED STUDIES IN UNDERGRADUATE PHYSICAL CHEMISTRY

Frank Momany, Robert Ford and William Zuber, Department of Chemistry

The objective of the project was to introduce students in Physical Chemistry Courses 3411-3412 to problem solving methods using interactive computing.

Physical Chemistry is best described as the study of mathematical models which allow predictions to be made concerning the physical and chemical behavior of atoms and molecules. Because of the mathematical complexity of these models, they serve as ideal systems for integrating the use of high-speed digital computers into the chemical curriculum. Modern computational science has developed so rapidly and spread throughout so much of society the past decade, that the education of scientists is incomplete without at least a brief introduction into the use of computers.

The approach developed in this project was based on acquisition of existing computer programs from outside sources and modifying these programs for our own use. By using pre-developed programs we were able to bypass much of the tedious and time-consuming work involved in development, and this allowed us to move rapidly into in-class applications. Although many sources of programs were found (see listing of sources), in every case the programs of interest to us required revisions. Most programs we found were designed to be carried out in batch processing, and we revised them to operate in an interactive mode. Minor modifications were also required due to differences in computer systems.

The adoption of selected programs was based upon our criteria for educating students. These criteria include: (1) enhancing the students' interest and enthusiasm in the problem, (2) increasing the students' knowledge in the particular subject being investigated, and (3) introducing the student to the problem solving characteristics of computers.

CLASSROOM PROCEDURE

The classroom approach used was, first, to lecture on the subject material until a background in the area had been developed. Next, a classroom demonstration of the problem was carried out, bringing the computer terminal into the classroom. Class participation in this exercise was sought. Finally, each student was assigned his/her own particular problem, which

was to be solved independently. These problems were to be carried out outside of formal class time, using termnals available in the Chemistry Department. The staff was available for consultation during the week that the problems were assigned, but the student was expected to solve his own problem. For example, in most cases, the mode of operation was an "interactive" one. In this procedure, the student calls the program of interest, and answers questions posed by the program. The answers dictate what route the student wishes to take to solve the problem. Finally, a request for data is made from the program, and the student enters his data. The program responds with a resulting numerical data file, or in some cases a plot of the results is presented. By evaluating the results, the student must then decide upon further action he must take, to attain the final answer. Some programs required several successive steps before the final solution was achieved.

COURSE AND STUDENTS

Physical Chemistry 3411-3412, as now constituted, has two lecture sections, and a laboratory section which may be taken for separate credit. One lecture section is a night course, and is principally constituted of students holding jobs during the day. These night students generally are not full-time students, and this class is a particularly interesting separate group, when compared to the "day" class. The approach to the use of interacting computing was treated differently in the two classes, with the night class given somewhat more formal problems to solve than were given to the day class.

SOURCE OF PROGRAMS

Various sources of the programs of interest were searched. In particular, the *Journal of Chemical Education*, and proceedings of several conferences on computers in education were most valuable in obtaining names of individuals active in this area of education. The individuals were contacted and requests for program material made. Several individuals responded with lists of programs that would be supplied at nominal cost of reproduction and mailing. A large number of programs was obtained, and those of interest were selected for adaptation to our needs.

DISCUSSION OF PROGRAMS

I. The computer program, BOX, solves the one dimensional quantum mechanical problem of a particle on a box for both finite and infinite wall potentials. The student inputs: A, the width of the box; M, the mass of the particle; and V_o, the height of the barrier potential. The program prints out the energies allowed for the particle by solving the equation

$$\tan \frac{2\pi A(2ME)^{\frac{1}{2}}}{h} = \frac{2\left[(V_o - E)\,E\right]^{\frac{1}{2}}}{2E - V_o}.$$

This program allows the student to see the effects on the allowed energy of a particle when he varies the mass of the particle, size of the box, or height of the restraining potential.

II. The computer program, VAN, uses the semiempirical Van der Waals' equation to calculate the volume of a gas at various pressures and temperatures. The results VAN calculates are plotted as volume of the gas versus pressure and can be used either for comparison with calculations from the simpler and more familiar ideal gas equation, or for comparison of Van der Waals' behavior at three different temperatures. A typical homework assignment which utilizes VAN would be to have the student look up values of the Van der Waals' constants for a particular gas and to try to deduce the critical temperature and critical pressure of the gas.

III. The program, ABCANL, deals with the chemical equilibrium

$$A \rightleftharpoons B \rightleftharpoons C.$$

The student supplies rate constants for each of the two forward and two reverse reactions, and the program calculates and plots the concentrations of molecules A, B, and C as a function of time. This program allows the student to see the effect of varying individual rate constants on the approach of a system to equilibrium. If the reverse rate constants are set to zero, the program can be used to simulate the kinetics of a simple 2 step reaction and thus illustrate the concept of a rate determining step.

IV. The program, TITRATE, calculates and plots the pH's of acid or base solutions when successive additions of strong acid or strong base are made. The program is capable of handling substances with as many as 8 ionization constants. The resulting titration curves are useful in teaching students how to select indicators for both ordinary titrations and for those involving multiple ionizations. They can also see how the strength on an acid or a base will effect a titration.

V. A program recently obtained but not yet used with our students is called KNEXP. This program is more sophisticated than any of the others and should prove useful in several courses. KNEXP has a bank of 20 reactions that have a variety of rate constants and rate equations assigned to them. The student must take one of these reactions and devise experiments that will allow him to determine the rate equation and the rate constant. Just as in the laboratory, he must choose appropriate concentrations, analysis times and substances to be analyzed. The computer simulates the experiment and provides the analytical data including appropriate experimental scatter. The data can be plotted in various ways to determine the rate equation. Costs, which depend on the complexity of an experiment and on the desired accuracy of analysis, are assigned so the students can be put in competition to see who can get the required information at the lowest cost.

EVALUATION OF PROJECT

We believe that the limited program developed was very successful. The students were overwhelmingly enthusiastic, and agreed that the projects were educational, stimulating, and increased their knowledge of both subject matter and the use of computers to solve complex problems.

The major problem associated with further development of this project centers on the effort required to produce usable programs which have the qualities of learning enhancement that we seek. For programs more complex than those developed thus far, the time and effort required may not be compatible with current teaching loads and personal research efforts. In this event, released time would be necessary to aid further development. In particular, the introduction of computer assisted learning into other courses such as general chemistry, would involve a major effort. An evaluation of this program and its requirements is being made.

SOURCES OF PROGRAMS

K. J. Johnson, University of Pittsburgh
M. Bader, Moravian College
G. Breneman, Eastern Washington State College
B. Z. Shakhashirir, University of Wisconsin
R. Collins, Eastern Michigan University
J. W. Blain, Washington State University
J. Corrington, Xavier University of Louisiana
J. Bragin and J. Casanova, California State University - Los Angeles
North Carolina Educational Computing Service, Triangle Research Center
CONDUIT, consortium of regional computer networks

PART II

VIDEO TECHNOLOGY

INTRODUCTION

The three projects included in Part II capitalize upon the dramatic progress that has been made within the last few years in the area of video technology. Two of the foremost advances have been in lightweight camera-videotaping equipment and video cassette playback equipment. Both are portable and simple to use. This type of equipment figures prominently in the three projects in this section of the monograph.

The first project reported, that of Michael McGee, demonstrates how network programming can be prepared for video cassettes and used to excellent advantage in illustrating various principles and procedures in courses in rhetoric and communications. Doubtless the same procedure could be used in any one of several other disciplines. Video cassette systems have a full color capability, and there is good reason to speculate that many instructional sequences that previously have appeared in the form of motion picture film will find their way to video cassettes, as an unusually convenient and effective mode of presentation.

The second project reports on one of the more obvious, and yet most effective, uses of the portable video camera and recorder units. This is the use of videotape in recording and studying activity that takes place in the classroom. Effective observational procedures recently have been developed which enhance the usefulness of videotaping instructor performance and interaction with and among students in the classroom. As a result of the experience that was gained in the project conducted by Dellow, Webb, and Ross, it was considered timely to institute a university-wide service, utilizing videotape for instructional improvement. An appropriate model which permits maximum flexibility in the degree of participation of the individual faculty member has been developed, and is being utilized on a campus-wide basis at the present time.

The third paper, by David Ciscel, not only points to some of the capabilities of portable video equipment but also documents some of the difficulties that a faculty member may well encounter in his efforts to utilize this technology. Ciscel properly recognizes that much can be learned by means of interaction among graduate students. Videotaping such sessions and playing them back should add materially to the quality of the comments made, and should also have a facilitating effect on inter-personal stimulation. Despite the favorable effects that were noted, the project director concluded that from an overall point of view the project could not be considered successful, due to a number of difficulties that were encountered with equipment and related matters. While many users of similar equipment would not agree that the difficulties reported are necessarily inherent in the use of such equipment, it does appear that the reported difficulties have implications both for those who have had limited experience with video equipment and for media centers that provide such equipment for instructional purposes. Since the time that these difficulties were encountered, action has been taken which should prevent most of them from occurring to the extent they did in this case. In any event the report is exceptionally forthright and points to pitfalls which must be avoided through close collaboration between learning media centers and faculty members who wish to use portable video equipment on an occasional basis in their courses.

A VIDEOTAPING CAPACITY IN THE COMMUNICATIONS CLASSROOM

Michael C. McGee, Department of Speech and Drama

For a number of years, teachers of oral communications skills looked forward to the development of an economically feasible videotaping capacity. It was felt that students in public speaking, argumentation, persuasion, and group discussion could benefit greatly from critiques of a performance as recorded on videotape. A technology did develop, and the utility of the electronic media in the classroom came to be well established. Until recently, however, television has been used for "pure" communication and not for information retrieval or storage. No attempt was made to use the tremendous amount of regular television programming, not to mention special political and social programming, as a resource both to enrich a classroom experience and to expose the student in a systematic way to mass communication events.

I became interested in this unexploited potential of new video technologies in 1970 as a result of the National Development Project on Rhetoric (the so-called "Wingspread Conference"). After a good deal of investigation and discussion, the Wingspread conferees concluded that the traditional modes of speech-communication education were not fully adaptable to life in the second half of the twentieth century.

The conference resulted in the following recommendations:

a. That courses be developed in which various media - print, group interaction, electronic media, film - are employed as tools of observation and channels of information in the study of human communication.

b. That courses in decision-making through rhetoric be organized around problem areas (war, poverty, racism) rather than media (public speaking, written composition, film, group discussions, etc.).

c. That courses or programs be developed which investigate the bases of criticism and offer training in the practical criticism

of popular arts and public dialogue in all media.

d. That all curricula make use of written social documents, philosophical dialogue, films, television programs, popular journalism, popular theatre, musical comedy, and similar media that use language and symbols as subject matter for the study of rhetoric (Bitzer and Black, 1971).

APPROACH

Charged with developing and modernizing the undergraduate curriculum in rhetoric and communication arts, I began in 1970 to consider curricular revisions which preserved the traditional function of Speech and Drama within Memphis State University and at the same time accomodated the recommendations of the Wingspread Conference. The key to this task lay in realizing that the most important application of the videotaping capacity was not in the performance course classroom, but in the theory and criticism classroom. The new technology has made it possible to preserve broadcast material without being totally at the mercy of the networks. Any television program may be recorded off the air to be used in the classroom at later dates as an object of criticism, as an example of production techniques, or as an historical document illustrative of communication theories. The tape provides the student with a more reliable and a more interesting document than a written transcript. Because his attention is focussed on real communication events, the student confronts problems of communication as they exist rather than in a laboratory context. The "instant stop" and "instant replay" capacity of the video-tape machinery permits the lecturer to illustrate his points immediately, and allows the student to ask for repetition not possible with most media.

From 1970-75 seven courses were designed with videotaping capacity in mind to implement the recommendations of the Wingspread Conference. Although each course was considered on its own, primary attention was given to developing the freshman-level course "Introduction to Rhetoric and Communication Arts." Besides the freshman course, the following courses were included in the project: "Introduction to Rhetorical Theory" (soph.); "Communication in Politics" (jr.); "Rhetoric in the Contemporary Environment" (jr.); "The Rhetoric of Social Protest" (jr.); "Seminar in Interracial Communication" (sr.); and "History and Criticism of American Public Address" (sr. & grad.). Two other courses, not specifically involved in the project, make use of the tapes produced: "Radio-Television-Film and Society" (jr.) and "Mass Communication and Society" (grad.). For six semesters, from 1970-74, various approaches to the problem were tried experimentally. The result of such experimentation was a syllabus incorporating the key recommendations of the Wingspread Conference (see Appendix A).

PROBLEMS IDENTIFIED

It was discovered in this period that perhaps the most difficult problems to be encountered were not soft-ware difficulties in curriculum design, but rather hardware difficulties in accumulating and actually using video-taped documents in the communications classroom. There were two specific problems:

a. It became obvious that material taken off the air or from a film is not in a form suitable for the classroom. Programs produced for a general viewing public, while didactic in function, are produced for entertainment. Research indicates that each television program, particularly on the commercial networks, is designed to attract and hold the attention of an audience which is then "sold" as a commodity to business and industry. At the same time, such programming incidentally "teaches" its viewers much about the world, by picturing situations outside the normal experience of the viewer and by holding up heroes and villains as models of acceptable and unacceptable behavior. The parts of a television program which are important as didactic communication events, therefore, are consciously de-emphasized to make the program more attractive to an audience, less "preachy." The practical consequence of this to the teacher who would use such documents in the classroom is that much irrelevant material is broadcast to give the communications event a veneer of "entertainment." For the classroom, that material should be deleted. Since programs in whole are nearly always too lengthy for established class time in most colleges and universities, it is desirable to edit salesmanship from programming for time-saving as well as pedagogic reasons.

b. Further, it was discovered that a document edited for one purpose in a lower division course is not suitable for the purposes and methods of an upper-division or graduate course. The communications event is one of the more complex occurrences in human experience. It may be understood as a case in performance, as a model of a kind of experience unique to the human condition, as a transaction characteristic of the social condition, as a model of a much abused medium for acquiring and applying power, and as evidence of a usual and necessary mental operation. The emergence of electronic technologies complicates an already complex event because the communication takes place beyond the interpersonal, observable dimension. Most communications curricula in American colleges and universities have adapted to the complexity of communications events by stratifying course offerings to reflect increasingly abstract topics of consideration. A single 60-90 minute television production, therefore, is conceivably useful as a document in courses taught at every level of instruction and intended to accomplish a diverse range of objectives. The necessity to emphasize diffent parts of the same programming (communication event) at different levels of instruction dictates the availability of several edited versions of a single document.

DEVELOPMENT OF A PRODUCT

Approximately 1000 hours of videotaped productions were taken to aid in developing the new curricular emphasis. These programs included copies of films, regular television programming, social and political special programming, and productions done by the Speech and Drama Department at Memphis State University. In part with the assistance of a summer grant from the Center for Learning Research and Service at Memphis State University, this material was edited, (a) to expose the didactic nature of all communications events, (b) to create video-units which fit available class times, (c) to provide material appropriate for each level of instruction, and (d) to orient instruction in the communications classroom more to reality than to laboratory situations.

In addition to general goal-oriented editing criteria, it was necessary to develop content categories to fit parts of available programming to needs in the seven new courses. A committee composed of those who would be responsible for teaching the courses suggested, after deliberation, that the freshman course should take up topics in three general ares, "rhetoric as an environment of symbols," "rhetoric in politics," and "social rhetoric." These general categories, it was felt, would expose the beginning student to major areas of interest in rhetoric and communication arts and at the same time be a preliminary summary of material to be covered in detail in the six higher-level courses.

More specific categories were developed for the six higher-level courses. Each instructor responsible for teaching one of the new courses was invited to familiarize himself with available raw video tapes. Each instructor completed a questionnaire indicating what available videotape material would be most appropriate for his course and what purpose he would seek to accomplish with the material. These six responses were correlated, and content categories for editing purposes defined on the basis of that information. Individual conferences were held with each of the instructors to insure that editing categories settled upon were appropriate to the needs each perceived.

The categories developed were then coded for computer indexing. Every reel of raw video tape was viewed, timed to the tenth of a second, and categorized by code. In cases where the same document was obviously useful all through the proposed curriculum, it was assigned multiple codes by sections. Complete coverage of the 1972 convention of the Democratic Party, for example, contained some material appropriate at the freshman level, upper division undergraduate, and graduate levels. Each segment was therefore coded for the appropriate level. Other documents, obviously suited only for one particular course or level, were coded accordingly and utlimately edited only for time so that they could be shown as closely in form as possible.

For the original 1000 hours of raw video tape, there were approximately 12,000 index entries. A simple computer search of index codes, however, made it possible quickly to pull together the precise location and time of segments to be made into a classroom tape. Once correlated, programs put together by computer were de-coded and described in ordinary language.

These descriptions were circulated to the committee of instructors for the freshman course and to each instructor involved in the six higher-level courses. Each instructor was invited to comment upon the proposed programs and to suggest additions or deletions which, in his opinion, would serve both the course he was responsible to teach and the overall goals of the curriculum revisions. On the basis of these responses, final decisions were made regarding the specific time and content of classroom tapes for all seven courses.

No attempt was made to produce commercial-quality tapes for the classroom. Indeed, a conscious attempt was made to keep the cost of production to an absolute minimum because of the volume of raw and edited tapes which were projected in years to come simply in keeping the collection current and interesting to undergraduate students. Raw tapes, therefore, were taken on ½" reel-to-reel tape. The recorder used had an instant stop and an editing capacity. The portions of a raw tape to be used for the classroom were then re-recorded on 3/4" cartridge tape, spaced with visual-only cue cards identifying the segment. Blips and distortions are apparent at the beginning and ending of segments, but they are not distracting enough to justify an expenditure on editing equipment in the tens of thousands of dollars. A good, laboratory quality tape, it was discovered, could be produced for no more than a $2,500 investment in equipment (much of which was already used for performance courses) plus the cost of cartridge tape. Reel-to-reel holding tapes for raw material can be reused indefinitely after edited versions have been produced.

A total of 47 hours of videotaped material was prepared for insertion into the seven new courses. The planned use of such material ranged from a minimum of 150 minutes class time in the senior-level course "Interracial Communication" to a maximum 1425 minutes class time (approximately 72% of total class time) in the freshman course "Introduction to Rhetoric and Communication Arts." Content used varied widely, representing every type of mass communications programming from children's cartoons to "Maude" to public service coverage of the 1972 political conventions and the House Committee on the Judiciary's public debate on the question of impeachment. Each tape was designed, not necessarily to focus upon the communication event itself, but on a principle of rhetorical or communication theory.

During the academic year 1974-75 videotaped material collected from actual broadcasts, but edited and produced especially for classroom use in rhetoric and communication arts, was inserted into the seven new courses, thus completing a five-year project designed to implement the recommendations of the Wingspread Conference.

EVALUATION

It is difficult to evaluate the effectiveness or significance of the videotaped material in isolation from the overall effects of the curricular innovations. There is no control group, no class of students who tried to learn the same material without a videotaping capacity,

for there had been no prior attempt to teach the material now included in the communications curriculum at Memphis State University. Indeed, so closely is the videotaping capacity built into the entire curricular conception that in many cases it would be impossible to cover the same material without specially-produced video tapes. Nor is it possible to compare the Memphis State experiences with those of other universities. Several universities have attempted to respond to the recommendations of the Wingspread conferees, and a few have tied their attempt into a videotaping capacity. The program at Memphis State, however, has developed independently and is believed to be unprecedented at this time, both in the conception of programs produced from broadcast material especially for the classroom and in the extent of usage of videotaped material throughout the curriculum. In the final analysis, only rough estimates of the effectiveness of videotaped material can be made, based only on the impressions of students and the experience of instructors who used the tapes.

Student Views

Nearly all of the students exposed to the use of videotaped documents in a lecture format found the experience "interesting" and "informative." There was some discomfort for them, however, for all felt the need for a textbook of some sort. Instructors indicated that their usual classroom examinations seemed to confirm the conclusions of the National Conference on Visual Literacy, that the students in spite of their discomfort learned and retained information as well or better from videotaped documents as from printed documents. When textbooks were added as requirements in the freshman course, student discomfort decreased - even though all examinations were taken strictly from videotapes and lectures with no use at all made of the textbooks. Our conclusion was that students have been conditioned to a linear bias and feel comfortable only when that bias is reinforced. At the same time, however, students have by their exposure to mass communications developed a high degree of visual literacy of which they are unaware. The use of a textbook as "skyhook" therefore frees the student to relate in a natural, unbiased way to videotaped documents.

Instructor Views

All instructors involved in the project gave their unqualified endorsement of the videotaped material provided them. Some had difficulty adapting their lecture style to sometimes lengthy videotape segments, but even these instructors saw the weakness to be in their inexperience in dealing with the new technology and not in the concept itself. All felt that the availability of such material permitted them to discuss communication and rhetorical theories in the context of "real" events rather than in the abstract. All felt, therefore, a much greater degree of student understanding and involvement than they had experienced in "drier" courses attempting to cover some of the same material.

These reactions, of course, do not constitute an evaluation of the effectiveness of videotaped material in the communications classroom.

Many questions are posed for future research, but no surveys or experiments have yet provided answers.

Recognition of the Course

Though the course is required only of majors in rhetoric and communciation arts, for example, the freshman course using the most videotaped material attracts more than 250 students per year, an increase from 14 in 1970 when the first experimental section of the course was offered. The success of the Memphis State approach has also attracted national attention. The technique was demonstrated to honors students and professors from 29 universities in 32 states and Canada at the DePauw University Undergraduate Honors Conference in Greencastle, Indiana, March 19-22, 1975. Student response was especially enthusiastic. This program attracted the attention of the Southern Speech Communication Association and the Southern Regional Education Board. Particularly interested in the freshman course, the SSCA and SREB requested that a special short-course workshop based on the Memphis State experience be conducted in Atlanta, October 16-18, 1975. Three universities have already requested detailed information from us so that they might model curricular revisions after the Memphis State experience.

A CONCLUDING THOUGHT

We are much too close to our experience with applying a viedotaping capacity in the communications classroom to have confidence in any measure of the significance or effectiveness of the curricular modifications which have been made. Enough encouragement has been received, however, to make us believe that our experimentation ultimately will bear fruit. When the experience of a few years, both at Memphis State and at other universities choosing to follow the same path, can be collected, an additional report might put the evaluation on firmer ground. For now it is enough to demonstrate a way of using rapidly advancing videotape technology to implement the recommendations of the Wingspread Conference. The end result, I think, will be a modernization and an improvement of the communications curriculum in contemporary universities.

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APPENDIX A

Description and Daily Calendar of Course, Introduction to Rhetoric and Communication Arts, Speech 1781

DESCRIPTION

Both for the student desiring a wide liberal arts background, and especially for the student begining the formal study of communication, an introduction to rhetoric and communication arts has been designed to define as well as possible the scope and limits of the influence of communication on human life. This is a survey course intended to sensitize the student to the existence of an environment of symbols which exists to guide his every behavior. It is our belief that most people living in the modern world are nearly oblivious to their symbolic environment - they believe that a movie can only entertain, that novels are simply a pastime, and that news programs communicate "factual" information. Rarely does the general citizenry recognize the use of the various modes of communication to persuade. Our mission in this course is to illustrate how all forms of communication shape values and control the behavior of those who receive it. To accomplish this task, we will not argue dialectically in lectures; rather, we will show the student specific examples of documents from every field of communication which have been used, consciously or unconsciously, to propagate faith in particular causes or beliefs.

Though the course is built almost entirely around material viewed and discussed in class the following books are required as texts:

a. Brent D. Peterson, Gerald M. Goldhaber, and R. Wayne Pace, eds., *Communication Probes.* Chicago: Science Research Associates, 1974.

b. Robert Heinlein, *Stranger in a Strange Land.* New York: Berkley Mediallion, 1969.

DAILY CALENDAR

Session	Topic
1	Course Introduction & Videotape Discussion, "The Environment of Symbols." There is an "ecology" of language and images as much as there is an ecology of air, water, and earth. To understand it, you must be aware of: 1. The Communication Process 2. The Function and Scope of Rhetoric
2	Television Documentaries, "But is This Progress?" There has been an "information explosion" which has caused

Session	Topic
	a great diversity in the symbolic environments of the last three generations
3	Radio Programming: The Rhetoric of Music Music is a channel of communication used to persuade as well as to entertain. It is a major contributor to the environment of symbols.
4	"The Trouble with Rock" Music is such a powerful medium of communication that it can become the center of a social, political, and moral *zeitgeist*.
5	Communication and the Question of Value: Debate on the liberalization of abortion laws. Mass communication magnifies even the most personal of moral questions as "the public mind" deliberates serious topics.
6	Communication and the Question of Value: "Maude" faces the reality of late pregnancy and abortion. Television shows apparently meant only to entertain and amuse often conceal arguments for and/or against questions of value.
7	Communication and the Building of the American Hero: Three different film editors put together different versions of a scene from "Gunsmoke." For a time we developed in America a "Western Marshall Ethic" because of the men made heroes in the fiction we used for entertainment. The same film footage can be used to communicate several entirely different impressions of the American Hero.
8	Communication and the Building of the American Villain: Archie Bunker and Family illustrate the process of stereotyping, and Joe Mannix confronts television's first black villain. Men are made into images by the stereotypes into which they are forced. Because of social conditions and the demands of current value commitments, sometimes a villain cannot be merely bad - he must be a thoroughly evil creature.
9	The Heroic and the Villainous in Children's Literature: Joel Chandler Harris's characters confront one another in Uncle Remus's story. What we believe to be heroic or villainous is programmed into us at an early age. Such beliefs are based on social conditions prevalent at the time stories are told and upon our perceptions of character relationships.

Session	Topic
10	Television's Kiddie Cartoons: Bugs Bunny, Superfriends, and Captain Marvel all deal with archetypal moral and political problems. "Socialization" is largely a matter of persuasion, of holding up the "right" models for "monkey-see-monkey-do" children. Are they really the "right" models?
11	Preliminary Examination One hour examination, essay type, intended to find out whether or not you are aware of and have some understanding of your symbolic environment.
12	Rhetoric and Politics: John Kennedy's Inaugural Address illustrates the presence of "magic" in the rhetoric of the Presidency. The President must be more than a man, a superman of sorts, capable of working magic and speaking truthfully in the name of "the people."
13	The President's Use of the News Media: Nixon's First Press Conference on Watergate. Questions at a Press Conference must be answered carefully. When properly used, such conferences can greatly increase the power of a President.
14	Television and the President's Public Speaking: Nixon's Speech on Watergate Denying Knowledge or Involvement Mass communication puts the largest audience in history before a contemporary President.
15	Television and Public Debate: Edward R. Murrow exposes the tactics of Sen. Joseph McCarthy's communist witch-hunt The line between a leader's magic and a demagogue's abuse of rhetoric is not always easily understood.
16	Television News: The Making of a Program The process of making a news show can often encourage an unconscious "bias." Headlines rarely tell the whole story.
17	Television News: A Comparison of the Three Networks News Coverage on a Single Day, August 5, 1974 Are the national networks "biased"? Who decides what is "news"? How does their decision affect your life?

Session	Topic
18	Preliminary Examination

One hour examination, essay type, intended to discover what understanding you have of the relationship between rhetoric and politics.

19 Societal Rhetoric: An ideology is formed and propagated in the first propaganda film, "Triomph des Willen"

Hilter made Fascism into an attractive dream, a dream of greatness which was, in a sense, humanism drawn to the absurd. How would you have reacted to his magic?

20 The Concept of "People": Hitler's Germans

A nation is defined almost as much by its history and its rhetoric as by its geography and language. In German history, for example, Poland was the villainous aggressive power which forced Hitler's invasion of 1936.

21 American Propaganda: "Why We Fight"

Though this is the land of the free, we are in the propaganda business, and we have been for some time. Why is it necessary to propagandize? Is it just "psyching up" for war as for a football game?

22 The Rhetoric of Literature: *Stranger in a Strange Land*

Can the novel persuade you without your knowing it? Is Michael Valentine Smith <u>really</u> a messiah, or is he more like the Martian version of Adolph Hitler? Would <u>you</u> be a "waterbrother," or are you a candidate for "zapping"?

23 The Rhetoric of Social Protest: Americans Agitate Against the Establishment

As these clips indicate, Messiahs of the extreme left and of the extreme right use much the same rhetoric.

24 Rhetoric and the Mass Movement: Martin Luther King and the Struggle for Black Liberation

How important was rhetoric in beginning and sustaining the Civil Rights Movement?

25 Rhetoric and the Mass Movement: Stokeley Carmichael visits Memphis State in behalf of Sekou Toure.

Sometimes one's only access to power is through rhetoric. Magic men make outrageous ideas seem attractive, even to those who disagree with them.

Session	Topic
26	Rhetoric and the Cultural Revolution: "When *Hair* Came to Memphis"
	A new culture, a "revolution," is defined and recognized by it's symbols. How do the old cultures react to it?
27	Final Examination
	A two-hour, comprehensive, essay-type final examination will be administered during the regularly scheduled time for your section.

SYSTEMATIC OBSERVATIONAL STRATEGY IN STAFF DEVELOPMENT

Donald A. Dellow and Steven M. Ross, Department of Foundations of Education
and
A. Bert Webb, Professional Laboratory Experiences

Improving classroom instruction is one of the crucial problems facing higher education today. There would be few teachers, administrators, or students who would disagree with the need for better teaching. Yet in spite of this concern, there are few good opportunities for college teachers to work with other professional educators on improving their own teaching abilities. Many faculty members are aware of the need to improve their teaching, but become woefully frustrated by not having a "vehicle" or instrument of change - i.e., a staff development program. Eble (1972) noted this lack of staff development programs when he reported on the American Association of University Professors sponsored Project to Improve College Teaching. He found that few universities and colleges had more than token staff development programs. Even those schools that had "functioning" staff development programs were groping for the most appropriate ways to help faculty members become better teachers.

The pioneering works of Anderson (1945), Medley and Mitzel (1963), and Flanders (1960, 1963, 1965, 1970) have ushered in a flood of interest in observing classroom processes systematically and objectively. The work of these individuals has stimulated a welter of observational systems and/or instruments that may be used to observe teacher-student interaction. Rosenshine and Furst (1973) estimate that there are well over one hundred observation systems available. Some of the available systems have little or no normative data while others have several volumes written on their standardization and research.

Flanders (1970) and Ober et al. (1971) present cogent arguments for the use of systematic observation for self-evaluation purposes and recommend strategies for its use. Ober et al. (1971) suggest the following:

> By using the data collected with an observation system, the teacher can improve his personal perception of what occurs in his classroom with a more objective analysis of what actually occurs. Observation systems are simply means of obtaining feedback about certain dimensions of the classroom. The

> teacher may compare his intent or objectives with the action or data collected, and thereby obtain a basis from which to modify further plans to change directions entirely to achieve the objectives. (p. 36)

The above description by Ober et al. of a strategy for using systematic observation describes rather well the implied ideas of many authors concerning the use of systematic observation (e.g., Flanders, 1970; Amidon & Hunter, 1966; Galloway, 1968) It might therefore be referred to as the "systematic observation strategy;" acknowledging that various authors and researchers might change the wording but keep intact the basic suggested procedures.

Ober et al. (1971, p. 36) summarized a review of in-service and pre-service projects that used systematic observation: "Studies of teachers who have been trained in an observation system indicated intensified awareness of the teaching-learning situation." The authors suggested that the ultimate value of the systematic observation process depended upon what use the teacher made of this greater awareness. It is more than probable that becoming aware of classroom interaction is indeed the easiest part of the entire process of improving instruction.

PURPOSE

It was the purpose of this study to field-test the systematic observation survey for improving teaching with four volunteer teaching-assistants in the College of Education at Memphis State University during the fall semester of 1974. This field-testing attempted to further ascertain whether the systematic observation strategy could be a useful vehicle for improving teaching through a university-wide program. With this goal in mind, the investigators attempted to create an environment in which volunteer participants could examine their own teaching behavior and design ways to improve the interaction patterns in their classes. Through self-examination, the volunteers established their own goals, with no value statements or judgements offered by the investigators. Self-examination, personalized goal setting and planning were encouraged as an appropriate strategy for the improvement of instructors in this setting. Essentially, the investigators constructed the following format for the study:

1. A teacher recognized a need to change his/her classroom behaviors.
2. An observation system was selected to analyze those components of the classroom that were of interest.
3. The classroom behavior of the teacher and students was videotaped and coded by the teacher or an interested colleague.
4. Feedback from the observation system was given to the teacher for self-evaluation.
5. The teacher consulted with instructional strategies personnel.
6. The feedback was utilized by the teacher in planning another lesson.
7. The observation system was re-used.

METHOD

The present section describes procedures employed in the field-testing of the systematic observation strategy.

Participants

In a summary of research on self-confrontation by videotaping, Fuller (1973) concluded that those who can handle self-confrontation are those who are ready to change their behavior and feel confident to do so. On the basis of this reasoning, graduate teaching assistants who appeared to fit this description were contacted about possible participation in the project. The first four persons contacted volunteered. All volunteers had already been assigned to teach one of the basic undergraduate courses offered by the Department of Foundations of Education. Since participation in the project was completely voluntary, the present group is by no means considered to comprise a representative sample of university instructors; rather, it is viewed as a select group of individuals who possess the willingness and desire to improve their effectiveness as instructors.

Observation Instrument

The Reciprocal Categories System (RCS), developed by Ober, Bentley, and Miller (1971), was selected as the observational instrument to be used in the project. The RCS is designed to provide feedback on nine different verbal behaviors: warming, accepting, clarifying, questioning, responding, initiation, directing, correcting, and cooling (see Appendix A).

Unlike many observational instruments, the RCS provides a measure of each category for both students and the teacher. The data on classroom interaction were considered potentially the most helpful in determining the degree of congruence between classroom ideals and actualities. In general, the RCS was viewed as desirable in that it could provide feedback on several important dimensions in the classroom, including: a) a measure of the socio-emotional climate; b) an assessment of the relative degree of teacher-student verbal interaction; and c) some indication of the type of verbal interaction which takes place in the classroom.

a. Scoring

The data collection procedures for the RCS essentially involved categorizing classroom verbal behavior which had been recorded on videotapes. The observer recorded the type of behavior that occured at three-second intervals, using the number of the specific descriptive category to which the observed behavior most clearly related. This tempo was varied only when more than one type of behavior took place within

the same three-second interval. When this occurred, the observer disregarded the time interval and recorded the appropriate category numbers in sequence. Additional details on data collection and interpretation are described in Ober et al. (1971).

In summary, the RCS was viewed as a desirable instrument in the sense that it could provide clear and interpretable information concerning both teacher and student verbal behavior. Ober et al. (1971) report very respectable levels of rater reliability for the RCS. The authors indicate that generally a Scott's Coefficient (Scott, 1955) of $r = .70$ can be achieved by most serious RCS observers.

b. Procedure

The project was implemented in two separate phases, each of which will be summarized separately in the following sections.

Preparatory phase. Several weeks prior to the actual implementation of the systematic observation program, the major concerns were directed to soliciting the participation of volunteer teaching assistants, procuring videotapes and taping equipment, and training project personnel (specifically, three faculty members and one graduate assistant) in the operation of equipment and use of the observational instrument. The latter task was considered particularly important in the case of the graduate assistant who was to be assigned the major responsibility for coding the observed behaviors. It was considered essential that the feedback provided to participants reflect both consistency and accuracy in observer judgements.

Ober et al. (1971) have indicated that in studies involving the use of the RCS or some similar instrument, inter-rater agreement often is regarded as an acceptable index of validity. The suggested procedure is to have the individual observer rate his own accuracy of classification through comparisons with such criterion measures as expert judgment. Accordingly, the preparatory period of the present project was used, in part, to assess inter-rater agreement between the graduate assistant and two of the faculty members, both of whom had previous experience with the RCS. The validity study involved having the observers code classroom behaviors, using 15-minute segments from four sample videotapes. After coding each 15-minute segment, the observers were encouraged to compare responses and discuss any obvious individual differences in interpreting and applying specific observational categories. The inter-rater reliability analysis yielded Scott's coefficients ranging from $r = .55$ to $r = .92$. It is noted, however, that six out of the eight reliability estimates exceeded the recommended level of $r = .70$. Also, as might be expected, the amount of agreement between observers tended to increase over trials. These results were interpreted as suggesting that satisfactory levels of consistency and accuracy in observer judgments had been achieved.

Operational Phase. A schematic of the basic procedures employed during the operational phase of the project is shown in Figure 1. The operational phase was initiated with a general orientation session attended by the project staff and the four volunteer participants. The major purpose of the orientation was to familiarize the participants with the specific purposes and procedures of the project. Also discussed were systematic observational strategies in general, and the RCS in particular.

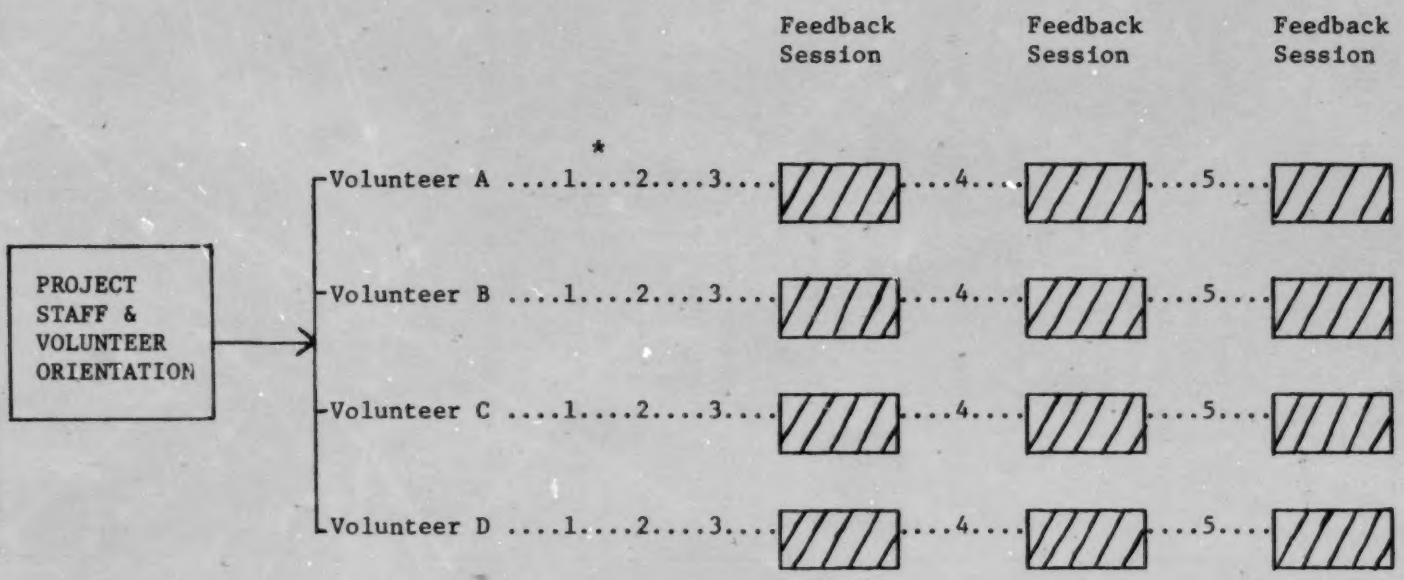
The first five weeks following the orientation session were used to videotape three class sessions for each volunteer participant. No feedback regarding these sessions was provided until the completion of the third videotaping. The rationale for delaying the provision of feedback was: (a) to allow the volunteer participant to relax somewhat if the videotaping was anxiety-producing; and (b) to insure ample opportunity to sample minimally the volunteer's teaching repertoire. At the completion of each taping session, the graduate assistant coded the recorded behavior in terms of the RCS, and transferred the data to summary forms.

Once the data for the first three sessions were collected and summarized, each volunteer attended a two-hour (minimum) meeting with at least two of the project facilitators. The preliminary discussion at these meetings generally involved a review of project objectives with additional time set aside to answer any questions posed by the volunteer. The volunteer was then asked to respond in written form to questions concerning his general teaching philosophy, instructional goals, and perceived success at accomplishing these goals. The volunteer participant was then shown the RCS data from his three taped classes. Excerpts from the videotapes were also replayed. After the tapes were shown, the project facilitators initiated discussion concerning the congruency between the volunteer's goals and observed behavior. The self-confrontation was encouraged in as warm and facilitative atmosphere as was possible. The facilitators used a reflective, non-directive approach, the purpose of which was to reinforce self-confrontation by the volunteer. The volunteer was also encouraged to provide constructive feedback and opinions of the project. Toward the conclusion of the session, the participant was requested to choose one or two specific behaviors (as measured by the RCS) that he/she would like to change - that is, work toward greater congruence between stated goals and actual classroom behavior.

The process involving the videotaping of a class, followed by a feedback session with the facilitators, was repeated two more times during the semester. Upon termination of the project (five videotapings with corresponding feedback for each participant), phenomenological feedback (mostly, personal impressions of the project) was solicited from the participants, graduate assistant, and project facilitators. This information was used in conjunction with the RCS data to make recommendations for a wider application of the staff development model field-tested in this study.

CONCLUDING OBSERVATIONS AND RECOMMENDATIONS

The purpose of the project was to obtain information about the practi-



* The numbers represent videotaping sessions in the classroom.

Figure 1. Schematic of procedures used in field-testing of systematic observational strategy

cality and effectiveness of a systematic observation strategy when used in staff development. Consequently, the major focus of the project evaluation involves the impressions of the participating personnel. Those impressions are conveyed in this section through the concluding observations of the project directors and their recommendations for future investigation in the area.

CONCLUDING OBSERVATIONS

The concluding observations are developed around general questions that were of interest to the project directors.

1. How do participating personnel respond to the systematic observation strategy?

    a. Was it difficult obtaining volunteers?

The first four teaching assistants who were contacted about this project volunteered with enthusiasm after hearing a brief description of the project. The assistants were not given any additional released time or compensation for their participation. In effect, the volunteers expressed what appeared to be a healthy curiosity about their own teaching behavior and were interested in the possibilities the project would offer in terms of professional and personal growth.

    b. What was the reaction of the teaching assistants to the actual systematic observation procedures?

The procedures used in the project called for making three videotapes before providing the volunteer participants with any type of feedback. This procedure seemed to be warranted, since the instructors and their students both exhibited some initial anxiety about the presence of the taping equipment in the room, as compared to later class sessions. The camera became less threatening on the second and third videotapings - as was evidenced by greater spontaneity and fewer glances toward the camera.

The consultation sessions were relatively unstructured. The project was designed to have at least two of the project directors provide a non-threatening and supportive environment in which the volunteer participants could react to their videotapes and analyses of verbal interaction. This procedure worked relatively well. The volunteer participants seemed to be at ease during consultation and all felt free to speculate aloud about some dimensions of their class session. The participants also seemed willing and eager to hear probing comments about their class sessions. At no time, however, did the project directors criticize a participant's behavior. At the end of the consultation sessions each participant was asked if there was anything he would like to work on and change for his next videotaping session. In each case, some behavior, usually a verbal behavior, was identified by the participant as warranting change.

As a result of the two consultation sessions held with each participant,

the project directors feel a great deal more investigation is needed in this component of the systematic observation strategy. It is difficult to assess the true impact of the consultation sessions when so few were actually held. It may be that the consultation sessions need to begin as they did in this project, providing support and nurture, and then become more confrontive where consultants perceive incongruities between teacher goals and actual classroom behaviors.

It was also the feeling of the project directors that some of the emphasis in the consultation sessions should be directed toward helping the teacher change classroom structure and instructional materials. In the past, and in this project, the major assumption was that the systematic observation strategy could perhaps improve instruction merely by helping teachers change their own verbal and non-verbal behavior. Although this assumption continues to be worthy of consideration, it may be naive to assume that change in teacher-behavior alone is enough to improve instruction to a significant degree.

The reaction of the participants suggested that the systematic observation process was an enjoyable personal and professional experience. They acknowledged they discovered things about themselves that they had not been aware of previously. Too, they expressed some relief at knowing that the process of self-confrontation was not so ominous a spector as it has sometimes been portrayed.

It seems appropriate here to say a few words about the reactions of other faculty members who were aware of the project. On several occasions the consultation sessions were interrupted by a faculty member coming into the room. They typically asked questions about the project and expressed an interest in the possibilities of offering a similar service for full-time faculty. Inasmuch as this had been the long-range goal of the project directors from the beginning, it was with some optimism that we were able to answer in the affirmative. Only a request for volunteers for such a university program will answer the question about the depth of interest really expressed.

c. What were the students' reaction to the systematic observation strategy?

Although no actual data were collected on the reactions of the students in videotaped classes, informal discussions with students by the participants and project directors suggested a very positive reaction to the entire process. Students indicated they were a little nervous and self-conscious during the first few videotaping sessions, but they quickly decided to ignore the camera and get on with the business at hand. Many students expressed a desire to see more such programs developed to help teachers improve instruction. Some students recommended offering a course where they could be more involved in the analysis of the teacher-student interaction.

2. Was the systematic observation strategy helpful in improving instruction?

The question of how effective the systematic observation strategy was

in improving instruction was, of course, a central concern in the project. At the outset, however, it was decided that it would not be feasible to investigate the question statistically. With so few participants and a limited number of taping and consultation sessions, a statistical analysis would be essentially meaningless. Instead it was decided to evaluate subjectively the feelings and responses of the personnel involved: the project directors, the teacher-participants, and their students. It was recognized that this approach has serious limitations, and is, perhaps, better suited to hypothesis formulation than to conclusions.

On the basis of a subjective analysis of the data, it appears participants were sometimes, but not always, able to make the desired changes. Each of the four participants indicated a desire to increase his own verbal reinforcement (Category #2 on the RCS and clarification of student responses (Category #3 on the RCS). The patterns of these categories increased and decreased with such variance that it is not possible to make conclusive statements about changes made. The participants acknowledged they were somewhat surprised at their low levels of categories #2 and 3 but were not able to make substantial changes (to their satisfaction) in their actual in-class behavior in the short period of time allowed by the project.

RECOMMENDATIONS

On the basis of the experience of the persons involved in the project, the following recommendations are made:

1. The systematic observation strategy as described and implemented in this project produced results encouraging enough to warrant its further and more extensive field-testing in educational systems.

2. The use of consultation sessions with colleagues or resource people seems to be a necessary part of the systematic observation strategy when used for staff development purposes. Further investigation might be directed toward establishing some movement in the consultation sessions from a facilitative atmosphere to one characterized by more confrontation.

3. The systematic observation strategy, when used as a part of a staff development program, needs to be utilized over an extensive period of time, i.e. six to nine months. This recommendation is based on the premise that for most persons teaching behaviors are an extension of long-established behavioral and attitude patterns that change slowly and grudgingly.

4. Future investigations might well make greater opportunities for student participation in providing feedback on a teacher's behavior.

5. Additional projects such as this one should try to extend the observational analyses to non-verbal dimensions. Although the verbal component of the classroom is important, the non-verbal aspects of behavior may be equally or more important.

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APPENDIX A

The Reciprocal Category System

Category Number Assigned to Party 1[1]	Description of Verbal Behavior	Category Number Assigned to Party 2[2]
1	"WARMS (INFORMALIZES) THE CLIMATE": Tends to open up and/or eliminate the tension of the situation; praises or encourages the action, behavior, comments, ideas, and/or contributions of another; jokes that release tension not at the expense of others; accepts and clarifies the feeling tone of another in a friendly manner (feelings may be positive or negative; predicting or recalling the feelings of another are included).	11
2	ACCEPTS: Accepts the action, behavior, comments, ideas, and/or contributions of another.	12
3	AMPLIFIES THE CONTRIBUTIONS OF ANOTHER: Asks for clarification of, builds on, and/or develops the action, behavior, comments, ideas and/or contributions of another.	13
4	ELICITS: Asks a question or requests information about the content subject, or procedure being considered with the intent that another should answer (respond).	14
5	RESPONDS: Gives direct answer or response to questions, requests for information or requests for permission, that are initiated by another; includes answers to one's own questions.	15
6	INITIATES: Presents facts, information, and/or opinion concerning the content, structures, subject, or procedures being considered that are self-initiated; expresses one's own ideas; lectures (includes rhetorical questions - not intended to be answered).	16
7	DIRECTS: Gives directions, instructions, order, and/or assignments to which another is expected to comply.	17
8	CORRECTS: Tells another that his answer is inappropriate or incorrect.	18
9	"COOLS" (FORMALIZES) THE CLIMATE: Makes statements intended to modify the behavior of another from an inappropriate to an appropriate pattern; may tend to create a certain amount of tension (i.e., bawling out someone, exercising authority in order to gain or maintain control of the situation, rejecting or criticizing the opinion or judgment of another).	19
10	SILENCE OR CONFUSION: Pauses, short periods of silence, and periods of confusion in which communication cannot be understood by the observer; or transition between pupils, or between teachers (in a team teaching situation), or between teacher and teacher-aide.	10

[1] Category numbers assigned to Teacher Talk when used in classroom situation.
[2] Category numbers assigned to Student Talk when used in classroom situation.

INCREASING INTER-STUDENT COMMUNICATION IN A GRADUATE LEVEL COURSE

David H. Ciscel, Department of Economics

This project utilized a videotaped discussion group approach in an advanced economics class, as an alternative to the lecture method. The idea was to focus on key concepts and problem areas. The key concept for the course, improving student competence with the course material, was translated into practice by using videotape equipment to meet three basic goals for the course:

1. To be able to take the material from the text and several scholarly articles and translate it for verbal presentation by students in class
2. To have every class member competent to work at the blackboard with the mathematics and graphics of microeconomics
3. To allow each student to increase the comprehensibility of his/her presentations through feedback on quality of performance.

The attainment of these goals would, hopefully, eliminate the key problem in a seminar class structure, namely, in-class evaluation of student performance often turns a seminar into a series of poor quality student lectures.

PROCEDURE

Each class meeting was recorded by a videotape technician using portable equipment. This allowed for both immediate and delayed retrieval of class material input. This process, in turn, allowed for a more rapid learning of economic theory by reducing the amount of repetition in the classroom. The record of classroom performance allowed the instructor to review the work done before the next class meeting. This permanent record of classroom performance also allowed for a more effective evaluation of the individual student's growth and contribution to the seminar.

Several background notes are useful to help to summarize the impact of the Center for Learning Research and Service seed grant in video technology on the conduct of this seminar. This particular course, Advanced Microeconomic Theory, is fairly standardized. The course material fo-

cuses on the graphical and mathematical aspects of neoclassical economics. It is one of two core courses in every Master's level economics program. Fifteen students registered for the course. In general, they were first year graduate students. Both the quantitative and the economic skills of the several students varied over a considerable range from below average to excellent. In addition to regular class presentations, each student was required to hand in a comprehensive "take-home examination" at the end of the semester.

The seed grant allowed for two assistants: a camera person and a typist. The camera person was an undergraduate economics major with considerable photography experience. His assignment was to record each class session on videotape, focusing in on the most active class participants and eliminating irrelevant classroom chatter. The typist was used to duplicate scholarly articles and to produce mathematical summaries of material for class use.

While I had experimented with videotape equipment on several occassions, I had never been in, nor had I been responsible for, a class where it had been used seriously. Thus, the grant was sponsoring an approach to the classroom that I considered very experimental. After receiving the grant, I decided to spend several afternoons, both individually and with my videotape assistant, learning to use the equipment. The videotape equipment was found to be deceptively easy to use. I use the word deceptively for two reasons. First, the machinery is delicate. It must be used with care if the last of the recording session is to match the quality of the first few minutes. Second, like photography, anybody can make a videotape picture, but only practice will bring a high quality picture.

EVALUATION

The evaluation of my classroom experiment is framed with many negative comments. Indeed, while I developed many useful insights out of that one semester experience, I rate the final results of the course experiment as a failure. The failure occurred because I became entangled in several serious pitfalls - pitfalls that I was totally unaware of at the beginning of the semester.

Pitfall #1: Low quality physical surroundings are very difficult to overcome.

The quality of your physical surroundings is very important. A classroom in which you are planning to use videotape should have good, even lighting, high quality sound reproduction, a lot of extra room and several electrical outlets. While portable videotape equipment is extremely versatile, there are limits. The biggest drawback to the two seminar rooms I used was the sound quality. Replay of earlier points proved increasingly difficult as students became bored with trying to understand the hollow echo coming from the television. One of the advantages of videotape is the ability to replay events immediately. Thus, a math-

ematical proof can be re-examined for notes or for errors without bothering the class discussant with maintaining everything on the blackboard during his presentation. At the insistence of the class members we discontinued this practice after the fourth week of class. It was easier to go through the presentation again than to listen to the tape.

Pitfall #2: There is no substitute for well-trained personnel or well-maintained equipment.

The lower the quality of equipment and camera person, the lower the quality the result will be. While the equipment is very easy to use, training a good camera person takes about 10 hours of camera work. Until that time, the sound will be strange, speakers will appear in the distance or the camera will "always" be aimed at the wrong person. The equipment must be in top shape to be used effectively. Portable equipment has a half hour charge when it is fully charges. If a partial charge goes in 10 minutes of running time, the camera person is limited to the closest wall plug for the rest of the period.

An example will illustrate the frustration that can come from a small defect. The camera person and I set up a system so that when I gave him the "signal" he would make note of the number on the recorder tape counter. Immediate (or even next period) replay was facilitated with this method. For half the semester all the counters were "on the blink," thus reducing the ability to find material. In general, the quality of performance of the equipment fell dramatically as the semester moved to a close. Of the last five class periods only during one did we have effective equipment. Twice the storeroom personnel ignored our reservation and checked out the equipment before we arrived.

Pitfall #3: The quality of the final result is directly related to the time spent in pre-class preparation of the equipment.

Effective use of the videotape equipment takes a lot of preparation time. Before class, the camera person and I spent a half hour reviewing the topics to be covered that evening, the things I wanted recorded, and the people most likely to make useful contributions. After class it was necessary to spend one to two hours reviewing the tapes, making notes on sections to be used in future classes and on students' work.

Our original plan was that the camera person would use these notes to edit out the unwanted material, leaving a brief edited summary of the earlier classes. In the Fall of 1974 the video editing capability on the Memphis State University campus was extremely primitive, requiring three or four hours of editing for every hour of tape. We, therefore, abandoned all attempts at editing after one try. All of this time must be added to the usual time needed for the preparation of a graduate seminar.

Pitfall #4: Videotape equipment does not substitute for classroom organization.

With any departure from the standard lecture or seminar class, organization becomes increasingly necessary if the "novelty" is not going to swamp the course material. Indeed, there were times when the course became a class in elementary video equipment. If everything is organized, most students forget the camera person altogether.

A final note should be added to this problem area. Due to the lack of both organization and available facilities, the students did not have an opportunity to review the tapes outside the classroom situation. A sporadic attempt was made to set up the equipment an hour before class. However, the equipment was borrowed and it was often inconvenient for students to find the machine and replay previous class experiences.

POSITIVE ASPECTS

Despite the problems involved, use of videotape equipment can add significantly to the class experience. Two benefits seemed to dominate others in this particular experiment. First, I was relieved of in-class evaluation. I no longer had to make notes on student performance or progress since I had a record of class activity to review. In class, this allowed more time to answer questions or look up inquiries in the text while the class continued. After class I was able to see closely the types of mistakes people were making. In fact, I was quite surprised at the number of graphical and mathematical mistakes that had passed by me in the class.

Second, students seemed to learn a lot about their presence before a class. In general, I have found seminar leaders to be boring, tedious speakers. The video equipment made them aware of their own performance and the quality of the performance increased in most instances.

RECOMMENDATION

I would make one extremely important recommendation for the future use of videotape in the classroom. Cameras, recorders, televisions and peripheral equipment must be kept and maintained in a central facility. Technicians must be available for training and operations assistance. I see a parallel between a usable video center and a usable computer center. Without maintenance people, systems analysts, programmers, and operators, the computer is not really useable for the classroom or for research. The same can be said of videotape equipment.

PART III

INDIVIDUALIZED INSTRUCTION
AND
COMPETENCY BASED INSTRUCTION

INTRODUCTION

The primary problem that individualized instruction seeks to solve is that of adjusting instruction continuously to the learning needs of each student without generating a requirement for an equally large number of instructors. Significant progress was made on this problem about twenty years ago with the advent of programmed instruction. The term, programmed instruction, is heard relatively infrequently at the present time, but the major characteristics of it, namely, carefully specified and measurable objectives based upon an analysis of the tasks to be accomplished, and try-out and revision of the instructional material developed to accomplish each of the specified objectives continue to be the central development characteristics of individualized instruction.

Competency based instruction normally begins with specification of measurable, observable objectives based upon an analysis of the behavior that is desired on the part of the students, also. The accomplishment of the specified competencies may be achieved by individualized means, although it is quite possible for them to be achieved through other means, such as group discussion and various forms of lecture. Since the objectives are clearly stated and corresponding test questions are devised to measure the achievement of the objectives, individualized instruction and competency based instruction normally share the characteristic of affording the student an opportunity to demonstrate his achievement of the objectives prior to instruction concerning them, if he feels that he can do so. If he is successful, he is not required to undergo instruction pertaining to objectives on which he has demonstrated proficiency.

One will readily recognize that it is possible to criticize this form of instruction on several grounds. Many of such criticism center around the difficulties involved in converting worthwhile educational goals into observable objectives and the difficulty in accurately measuring some of these objectives once they have been specified. However, as telling as these criticisms may be, it would seem that they center more around problems of implementation than around the more central issue of adequacy of rationale.

In both of the papers which follow an excellent job of surmounting practical problems was accomplished. In the first paper Patricia Lynch describes the development of an individualized program of instruction in the Department of Nursing which depends to a major degree upon stating the objectives to be accomplished and providing a means, primarily through the medium of the printed page, for the accomplishment of each objective. The procedures followed in the case of the second paper, by Brotherton and Peete, were similar in a number of respects to the work reported in the paper by Patricia Lynch. This project differed significantly, however, in the setting in which it was accomplished, namely, in teaching developmental reading and language arts, and in its orientation toward the specialized characteristics of competency based instruction as opposed to emphasis upon an individualized approach. Both projects were successful in the sense that the procedures and materials that were developed have gained acceptance for continued use in the courses for which they were designed and are being used as a model for further development of similar material.

ADAPTATION OF INSTRUCTION TO THE INDIVIDUAL STUDENT

Patricia V. Lynch, Department of Nursing

Individualized instruction may be described as a method of presenting learning which is highly organized and structured in such a way as to allow each learner to progress at his/her own pace through a predetermined set of objectives and activities under supervision of an instructor. It should not imply that the student works alone at all times, but should promote cooperation between the learner and other learners and assist the learner to meet the identified objectives in a manner which is found by the learner to be effective.

The process of individualized instruction follows the seven steps identified for development of programmed instruction. These include: task analysis, identification of behavioral objectives, criterion test items, identification of material to be used, field study and revision, validation and utilization. These steps vary from the conventional methodology considerably, which normally includes: presentation, application, summarization, and examination.

Individualized instruction is a form of programming which creates a form of independence in the learner and which reinforces the learner throughout the program. It allows the student to be rewarded for knowledge he/she brings to the course but does not penalize the student who does not bring this same knowledge. Each student is pre-tested and the program is based then on the results of these tests. The student may need to spend little or much time on a selected set of objectives based on the outcome on the pre-test. These tests are not graded and thus do not carry the stigma of failure. After a student has mastered a set of objectives the post-test may be taken. This test is graded. In a setting where true pacing is feasible the student may continue to take post-tests on groups of objectives until a predetermined competency level is achieved.

The teacher in an individualized classroom is freed from routine activities associated with traditional methods and is allowed to become a diagnostician, material specialist, tutor and resource person for the student. No longer does the teacher merely transmit information but now assists in the transport of this information.

PURPOSE

It had been desired for some time by this researcher to establish an individualized Medical Surgical Nursing course with the idea that this would provide the student with a choice of learning opportunities. Since this particular nursing course has two sections, it was relatively easy to provide for the nursing student the opportunity to choose the method of learning which he/she found most rewarding and meaningful. Following a successful pilot project in which only one unit of this four unit course was individualized, the entire four units in one section of the course were individualized. This project began during the academic year 1974-75. Contents of these two sections were identical based on behavioral objectives. Standardized tests were identical for each section also, but teacher made tests although similar were not identical. One section was devoted totally to individualized instruction and the other to traditional or lecture method.

From the standpoint of experimental design the null hypothesis of this project is that given two methods of teaching, traditional and non-traditional, there is no difference in the student's cognitive skill based on a variety of standardized and teacher made tests.

METHODOLOGY

Subjects

Data were collected on 63 subjects (32 control and 31 experimental) at Memphis State University Department of Nursing. All subjects were nursing students who graduated in May 1975 with an Associate Degree in Nursing. All subjects were enrolled in a 10 credit nursing course, Medical Surgical Nursing, during their last year in the nursing program, as shown in Table 1. No effort was made in placement of these students according to any criteria other than the normal progression in the nursing program. Although, a total of 120 students were enrolled in the course during the academic year 1974-75 only those students who graduated in May and wrote State Board Test Pool Examinations in July 1975 in the state of Tennessee were utilized. Also, for the purpose of this study no students were included in the study who did not successfully complete this course, due to failure, or to withdrawal or dropping prior to the end of the semester.

Measurements

Measurements utilized in the study to evaluate the learners' cognitive abilities were: Medical State Board, Surgical State Board, and the following National League of Nursing examinations: Medical Surgical Nursing Comp. 1 which included Neurological Nursing, Orthopedic Nursing, Eye-Ear-Nose and Throat Nursing, Medical Surgical Nursing Achievement with separate tests on Medicine, Surgery and a composite of Medical-Surgical. All the above mentioned tests were standardized tests. Unit examinations and total course grade were also compared for both sections. These were teacher made tests and were based on the behavioral objectives of the units. These tests were not identical but were similar in nature.

Table 1

Comparison of Experimental and Control Groups According to Selected Variables

VARIABLES	EXPERIMENTAL	CONTROL
Males	2	1
Females	29	30
Mean Age	27	27
Black	4	10
White	28	21
Mean GPA	2.79	2.65
Mean Credits Before Course	76	65
Mean Years of Formal Education Before Course	13	13

Procedures

The T scores of the State Board exams and the raw scores of each of the other exams including the teacher made tests were compared according to experimental and control groups, utilizing an analysis of variance test. A multiple regression analysis was also employed in which all the results of the above mentioned standardized and teacher made tests were compared to a list of variables which are included in Table 1. All statistical analyses were done by computer.

RESULTS

According to the analysis of variance, the groups were found to differ significantly (.01 level) on the Neurological Nursing National League of Nursing in favor of the experimental group. The groups were also found to differ significantly (.05 level) on the Eye, Ear, Nose, Throat National League Nursing in favor of the experimental group. The groups differed significantly (.01 level) on the Surgery Nursing National League of Nursing in favor of the control group. On the teacher made tests the groups differed significantly (.01 level) on the unit examination, Nursing Care of the Patient with Disturbances in Fluid and Electrolyte Balance, in favor of the experimental group, and at the same level for the overall course grade in favor of the experimental group. There was a difference on the teacher made test, Nursing Care of the Patient with Abherrant Cell Growth, at the .05 level also in favor of the experimental group. The above results are sumarized in Table 2.

Table 2

Summary of Comparison of Experimental and Control Groups on Selected Variables by Analysis of Variance

Variables	F Ratio	Probability (Level of Significance)
Medical state board	3.57	.061
Surgery state board	.597	.551
NLN:		
ortho	.097	.754
neuro	10.37	.002**
e.e.n.t.	4.13	.045*
medicine	1.09	.300
surgery	4.16	.042*
med/surg	2.53	.112
Teacher made:		
fluid and electrolyte	.765	.610
circulation	.195	.664
Neuro/orth/e.n.t.	62.02	.0000**
Ca.	4.97	.02
Course Grade	10.58	.002**

Total degrees of freedom = 62

* significant at .05 level

** significant at .10 level

As shown in Table 3 the Multiple Regression Analysis used seven variables. These included, age, sex, race, years of formal education, GPA (grade point average) prior to entering the course, credits prior to entering the course, and experimental or control group. It was found the GPA prior to entering the course had a significant effect upon the following standardized tests in favor of the experimental group at no less than the .05 level: Medicine and Surgery State Boards, Orthopedic Nursing NLN, Medicine NLN, Eye, Ear, Nose, and Throat NLN. This difference was also seen in the teacher made tests including: Nursing Care of the Patient with Neurological, Locomotor and Sensory Disturbances, and Nursing Care of the

Patient with Aberrant Cell Growth.

Age was demonstrated to have a positive effect at the .05 level on the following two NLN's: Eye, Ear, Nose and Throat and Medicine Nursing. Race also proved to be a significant variable on two NLN's (.01 level) Medicine Nursing and Surgery. The statistics indicated that the white students did better on these two tests than did the black students. Credits prior to the course has a positive effect (.05 level) on the teacher made test Nursing Care of the Patient with Abherrant Cell Growth. Experimental or control group showed significant difference on the NLN Neurological Nursing, and the teacher made test Nursing Care of the Patient with Nurological, Locomotor and Sensory Disturbances and on the overall course grade all at the .01 level.

No significant differences were noted according to sex or years of formal education.

Table 3

Multiple Regression Analysis with Significance of Independent Variables

	State Board		N. L. N.						Teacher Made Tests				Course Grade
	Med.	Surg.	Ortho	Neuro	e.e.n.t.	Med.	Surg.	M/S	Fluid Elec.	Circ.	e.m.e.n.t.	Ca	
Age	-	-	-	-	.05	.05	-	-	-	-	-	-	-
Sex	-	-	-	-	-	-	-	-	-	-	-	-	-
Race	-	-	-	-	-	.05	-	.05	-	-	-	-	-
Yrs. of Form. Ed.	-	-	-	-	-	-	-	-	-	-	-	-	-
G.P.A. before Course	.01	.01	.05	.01	-	.05	-	-	.01	-	.01	.01	.01
Credits before Course	-	-	-	-	-	-	-	-	-	-	-	-	-
Exp. or Control	-	-	-	.01	-	-	.05	-	-	-	.01	.05	.01

- Not Significant

DISCUSSION

The variable which appears to have the most positive effect on State Boards NLN's and course grades is the GPA prior to entering the course.

The variables of experimental and control groups show little significance except on the Neurological NLN in favor of the experimental group and the Surgical NLN in favor of the control group. The significance of this difference is doubtful in our opinion since clinical laboratory rotations for the experimental group included a Neurological Nursing Unit while the control group had a clinical laboratory experience on a Surgical Nursing Unit. The degree to which these factors influence the scores on tests is not verified, but it is felt that they played an important role.

The comparison between the experimental and control groups on the teacher made tests does show a difference in favor of the experimental group, but this may not be a valid difference since, although these tests were based on the same behavioral objectives, the test questions differed.

This study tends to support the hypothesis that there is no difference between the two methods of teaching, at least, as far as can be measured by a variety of standardized tests. This is just one study and further proof must await additional studies involving large numbers of students in different areas of the country.

SUMMARY

A study was carried out to compare traditional (lecture) and non-traditional (individualized) methods of teaching a Medical-Surgical Nursing course in an Associate Degree Nursing Program at Memphis State University. The groups were compared on the basis of performance on State Board Test Pool Examinations, National League of Nursing's and teacher made tests. The findings did not indicate a significant difference in the two teaching methods. Multiple Regression on several variables indicated GPA prior to entering the course had the most significant relationship to performance on the tests used. Suggestions for further investigation in this area were offered.

COMPETENCY BASED INSTRUCTION IN TEACHING READING AND LANGUAGE ARTS

Sophia Brotherton and Ellen Peete, Department of Curriculum and Instruction

Several years ago the competency-based concept was considered as one usable vehicle for improving the teacher education program at Memphis State University. At approximately the same time a commission on High Quality Teacher Education, appointed by the President and Board of Directors of International Reading Association, decided that a University model program in the area of reading and language arts should incorporate the following guidelines taken from their publication, *Modular Preparation for the Teaching of Reading:*

1. It must itemize the content of a professional program in detail in order to break the common pattern of partial preparation

2. It should require much more competence on the part of general classroom teachers than in the past because they do most of the teaching of reading

3. It must be a competency-based program to assure that teachers attain skills that will enable them to perform as successfully in the field as they perform on tests in the college classroom

4. Related competencies should be grouped together to form modules of learning which can be fitted flexibly into various types of pre-service and in-service education programs

5. The sequencing of modules and the stating of performance criteria for competencies should offer numerous options so that the program can be used with great flexibility to improve learning in various schools and universities

6. The program should require early and frequent involvement of teacher-learners with children so that the teaching skills can be attained and tested

7. The program should prepare teachers to move away from conventional teaching and toward personalized diagnostic teaching which is suited to individual needs and backgrounds.

8. Opportunities should be included for teachers to grow continuously in competence until they can provide leadership in program development.

CONCEPTUAL FRAMEWORK

Aware of this, two language arts/reading teachers at Memphis State University felt that the climate was right for them to begin the long range task of developing a new undergraduate program for reading and language arts. A small faculty grant was secured and the work was begun on a modular approach whose implementation or delivery would be more personalized, diagnostic, and prescriptive than in the past. The university teachers incorporated the commission's guidelines but made no effort to eliminate their own philosophical biases which influenced the development and implementation of the program. Among these were:

Learner-centered. Education is primarily a process that goes on within the students whether that delivery system is traditional or non-traditional. It is more than a procedure by which information is delivered by a teacher, assimilated by the students, and recalled through examination. The teacher's major role is to structure the learning environment so that change is possible and then work with students in ways that will inspire them to want to change their own behavior.

Humanistic. The TEACHERS cannot be replaced by a module. They must still teach. The module is merely a vehicle to help teachers do a better job of providing for individual differences. Therefore, frequent contact with teachers and peers must be built into the program so that it will not be dehumanized.

Field-Oriented. The program should provide for immediate and ongoing experiences where students can observe good classroom procedure and field test the theory being acquired at the university. University teachers should cooperatively participate with public school personnel to insure correlation between theory and application. Such cooperation not only more adequately prepares the student but it keeps the university teachers in touch with the reality of classroom teaching and, at the same time provides in-service education for the classroom teacher. In such a setting it is possible for the student-teacher, the classroom teacher, and the university teacher to learn to value the role of each in the quest for quality education.

Individualized. The program should be designed to facilitate varying learning styles, goals and capabilities.

PROCEDURE

Students from the Resident Intern Program provided a field-oriented base for this project. In this program, students combine method courses and student teaching in a two-semester sequence and their time is divided between the

university and public school classrooms.

The two university teachers, scheduled to teach separate courses, "The Teaching of Developmental Reading" and "The Teaching of Language Arts," agreed to combine and team teach these courses to avoid fragmentation and duplication inherent in this separate treatment of the language arts. Listed were the procedures to implement this change:

1. Competency goal statements or long range outcomes were developed for the combined course. Behavioral objectives were written for each competency goal statement and grouped into modules

2. Procedures for determining which competencies each student had already attained or needed to attain during work on the module were determined

3. Learning activities were determined. Some were added after group planning between university teachers and students. Schedules and delivery strategies for individual and group learning were designed

4. A teaming relationship with the University Campus School was established so that students could practice and demonstrate mastery of stated performance objectives

5. Techniques for recording and reviewing individual experiences and progress in competency attainment were established

6. The procedures by which individuals and groups could demonstrate the attainment of specific knowledge and performance competencies as they progressed at different rates were specified

7. A guide to enable the learners to proceed with their day-to-day learning experiences was prepared

8. Necessary planning for the utilization of faculty resources in carrying out procedures of group instruction, individual tutoring, individual supervision and individual assessment was done.

A language arts laboratory was developed from a small classroom and was used for total group lectures, small group seminars, individual conferences and some independent work through learning stations. The Reading Center facilities, the College of Education Learning Resources Center, the University Learning Media Center, and the Memphis State University Campus School served as extensions to this room.

The learning experiences utilized with each module were varied enough to meet the needs of different kinds of learners and to make their work interesting. These experiences included the use of textbooks, journals, study guides, manuals for tests and instructional materials, lectures, informal group discussions, structured problem-solving discussions, demonstrations of teaching, videotaped demonstrations, taped records of pupil-teacher interactions, tutoring, teaching small groups, and viewing films and filmstrips. Many of the materials

used were purchased with funds from the small grant that was awarded to the university teachers.

Students were encouraged to work at their own pace and to choose in many instances the modes by which they wanted to learn. Records, kept by students and faculty were evaluated on a weekly basis, conferences scheduled when necessary, and special learning groups based on need established. All students were scheduled for a mid-semester and end of the semester conference with the university teachers where the students' performance, attitude and reaction to the course work were discussed.

The university teachers taught together in the university classroom and spent at least one morning per week with the students in the Campus School. It was felt that this would help positive transfer between learning experiences in the university classroom and teaching experiences in actual classrooms to be attained. Also, observable behavior was the basis for evaluating the progress of the interns and this could best be done over an extended period of time.

The two teachers met daily to discuss and analyze their involvement with students and the course content. It was felt that both worked better together than separately and complemented each other in terms of strengths, interests and teaching styles.

A group composed of student interns, university teachers, Campus School teachers, curriculum director for Campus School and coordinator of the Resident Intern Program also met on a weekly basis so that students and staff could offer feed-back concerning strengths and weaknesses of the program. Such meetings were helpful because they allowed the two teachers to maintain open lines of communication with the interns and Campus school teachers under whose supervision the interns applied their knowledge of content and methodology. Acceptable performance standards at the teaching level were agreed upon and used by both the university teachers and Campus School teachers. This was a major break-through for the student and should be nurtured and expanded in the future.

EVALUATION

Evaluation of the project was an on-going process in which the university teachers, students and Campus School personnel participated. Because of the intense pressure of developing and delivering a program at the same time, evaluation was informal and utilized conferences, written records and an open-ended student evaluation. An additional source included the personal experiences of the university and Campus School staff. An analysis has led to these conclusions:

1. In a competency based program the competencies to be acquired and the criteria to be applied in assessing the competencies are supposed to be made explicit, making the student fully aware of what is expected and how those expectations are related to the role of the teacher. Most of the students felt that this was a definite strength replacing the vagueness and ambiguity sometimes characteristic of traditional programs.

The university teachers also felt this was an advantage. However, in judging the effectiveness of some of the modules, it was obvious that some were mechanistic, allowing little room for student initiative and creativity. Revision must insure that they are generated from a conceptualized whole and that they allow more flexibility.

2. In a competency-based program, achievement is supposed to be held constant and time varies as opposed to traditional programs where time is held constant and achievement varies. This is based on the idea that competency-based approaches ensure mastery of the specified competence while allowing the student to learn at his own rate. Within the traditional framework of the College of Education and the University this was very difficult to implement. The use of the "T" as a grade for individualized instruction, now allowed by the university, may help those students who need more time in the future.

3. A continued reconceptualization of the role of the teachers is necessary for an effective individualized, competency based approach. The move toward personalized, diagnostic teaching which is suited to individual needs means increased responsibility for the teachers. They become, among other things, curriculum producers who must be able to write concisely and clearly as they author modules and materials for students. Modules are difficult to write, review, rewrite and recycle and the amount of time and energy necessary to produce something students can follow is tremendous. The teachers must learn to be on a "demand call basis" in the intensive day-to-day contact with students. This advisory role includes time for individual and group contacts, immediate grading of tests or evaluation of performances on the spot where testing turns into tutoring, and time for record keeping. This constant change of pace is difficult and the faculty members must learn to set priorities in budgeting their time. Greater emphasis will have to be given to the importance of skills in effective human interaction.

4. More responsibility will have to be placed on the students for their own progress and accomplishments. An individualized competency-based approach requires more work and more self-management by students. Unlike traditional courses, they have to be aware of and attend classroom activities when they are scheduled because they will need this in order to reach competency on a certain module. For self-instructional modules they must find out where and at what time assessment will occur. They must change from passive receptacles who may or may not learn in class, even if there, to individuals who become involved in making decisions and taking responsibility for their own learning. Those who cannot cope with this responsibility will eliminate themselves from the program; while, those who remain attain the competencies at specified levels of performance. Failure in terms of final grades is eliminated. Students who receive passing grades have demonstrated mastery at both knowledge and application levels, therefore, the rest of the university must not view the resulting grades as "grade inflation."

5. Time must be provided for the writing of additional modules and the preparation of materials and resources needed for existing ones; for once modules are set up, appropriate and diversified procedures and materials need to be available for accomplishing objectives. Such delivery strategies must be designed to accommodate varied learning styles.

6. Evaluation needs to be in terms of specific criteria rather than group norms and better, more comprehensive evaluative techniques are needed and must be developed.

7. Strong administrative encouragement at all levels is imperative. If faculty members and administration agree at the beginning of the school year that the faculty members will invest time and energy in such curriculum production and teaching, then evaluation should be based on this at the end of the year.

8. New experiences are essential to faculty development. Faculty who have forgotten what it is to face new challenges have lost touch with the situation in which their students normally exist. The experiences of a cooperative team approach to teaching were invaluable to the two college teachers. Not only did they realize that as members of a unit they had much more to offer students in terms of goals, activities, materials and grouping structures but they felt that their own professional growth and improvement was greatly enhanced by the team's on-going analysis of individual teaching and overall team effectiveness.

PART IV

DEVELOPMENT OF INSTRUCTIONAL MODULES

INTRODUCTION

Instructional modules may be used to assist in achieving learning objectives in a segment of a course, as is true of the modules that are reported in the two papers which follow, or the entire course may consist of a series of instructional modules. In this later case it is not unusual for the modules to be constructed in such a way that the student may proceed at his own rate in accomplishing the objectives of the modules, nor is it unusual for the student to have an option of selecting the order in which the modules will be undertaken.

The modules prepared by Bowman, DeLoach, and Hendrix are, in a sense, inter-disciplinary modules in that they were developed for use in a course offered by the Department of English but involve a number of items of knowledge and skill that are a part of Library Science. As noted in the paper, three programs or modules were developed for use in a freshman English course. Two of the modules may be used singly, or in sequence, while the third program combines much of the material that is found in the first two. All three programs may be used in an individualized mode or may be used in a group mode by an instructor in the classroom. Further, use of the modules is not confined to students enrolled in the course for which they were developed; the modules are viewed by the authors as suitable for use by any student or faculty member who wishes to achieve the objectives which they undertake to teach.

The paper by Gayle Rayburn describes case problems and computer problems that were developed to facilitate learning in Managerial Accounting and Cost Accounting. They appear to fill a need for materials which capture certain aspects of real-life situations and help the student to develop skill formulating solutions which would be difficult to accomplish in the absence of the gradually increased complexity that is built into the case studies. In addition, the nature of the cases is such that only minor modifications are required to increase the difficulty of the cases to the point that they would be appropriate for more advanced students. The materials developed should prove to be valuable both in the courses for which they were developed at Memphis State University, and at other institutions.

DESIGN AND PRODUCTION OF SOUND-SLIDE MODULES AND OTHER MATERIALS FOR LIBRARY INSTRUCTION

David Bowman and William DeLoach, Department of English
and
Wilma Hendrix, J. W. Brister Library

English 1102 is a course with many responsibilities. Required for graduation from Memphis State, it serves to introduce our freshmen to the three basic genres of literature - poetry, drama, and fiction - and to teach them how to write a standard library research paper. Those of us who teach the course have long felt that the library instruction part of the course needed some improvement. We knew that many of our students tended to be intimidated by the size and complexity of the MSU Library. And yet we realized that without a thorough familiarity with methods of finding information, our students would be hampered not only in their English courses, but also in virtually every course in every curriculum on campus.

Our goal was to provide an introduction to using the library sufficiently general so that any teacher in any course could say to his students "Look it up!" or "Write a term paper" with some confidence that the students would know at least where to begin looking to find the relevant information.

ALTERNATIVE SOLUTIONS: CHOOSING A MEDIUM

Because we had to present a great deal of relatively precise information in the limited amount of time available (one to three class sessions), we were worried about the danger of overloading the students with more detail than they could readily absorb and remember. To make the information more palatable and more easily comprehensible, we turned to audio-visual aids. The expert researcher, looking for a book, wants only its call number. But the beginner in research, less familiar with the nooks and crannies and pathways of the library, may need more than the bare-bones minimum information that the call number gives him. The beginner likes to know something of the look and feel of the book he is to use. What color is it? What size? What does it look like on the shelf? What does it look like inside, and how do you find the item you are looking for? And how do you interpret all those abbreviations used by

reference books?

The first alternative solution we considered was using the Library itself as a marvelous three-dimensional, omni-sensory, "visual aid." After all, why should one resort to films or photographs when the *real thing* was so close at hand? But most of us, after trying it once or twice, began to realize that the field trip method had definite limitations. Some students wandered ahead or lagged behind, making it difficult for the teacher to hold the class together as a group that could be given instruction. The sight of twenty-five students plus lecturing instructor seemed to be distracting to some of the regular patrons of the library. And patrons, in turn, were sometimes a hindrance to a touring class if the class wanted to examine a book or file that was already in use. Perhaps the worst of the distractions was the problem of scale: books as a resource tool were never designed to be used by more than one or, at the most, two people at a time. The teacher has two options, both equally unsatisfactory: he can show the item to two students, and resign himself to boring the other twenty-three, who can only guess at what is being discussed; or he can "pass around" the book from hand to hand, giving each student only a glimpse, and using up large amounts of time. No, there must be a better way.

One alternative already developed is the self-guided tour using audio-cassettes: the student checks out a cassette player and earphones and tours the library according to the pre-recorded instructions. This is primarily an orientation tool, good for pointing out the physical layout and holdings of various parts of the library, but there is also a certain amount of actual instruction offered. According to the evaluation sheets filled out by about six hundred students who have used the self-guided tour, the few negative responses ranged from "directions sometimes confusing" to "walking around with earphones on was embarrassing." Otherwise, the responses have been generally favorable. Unfortunately, the extensive changes made in the location of various departments (Microforms, Learning Media, Reserve, and other departments in the Library) have made the present tape obsolete, and, of course, a new cassette will have to be made whenever new features or new rules are added (such as the security procedures for entering the tower stacks). The self-guided tour will continue to be a valuable alternative of introducing the student to the library, but its instructional uses are limited.

Videotape was the next alternative we considered. It is a very economical and flexible medium -- but some of its characteristics proved to be inappropriate for this project. The best virtue of videotape (or film) is its capacity for showing motion; but our project did not intrinsically require the portrayal of motion; a series of static images could convey our message almost as well as a movie. What we did need was a capacity to project, large and clear enough for an audience of twenty-five or more, a crisp image of a rather small original, such as a card from the card catalog, or one or two-line entry in a bibliography. But here the video screen is rather limited, both in size and in the sharpness of its image (resolution capability).

Finally, we considered the combination of 35mm color slides, with an

accompanying sound track on a tape cassette. Although this combination, involving the use of both a slide projector and a tape player, is somewhat unwieldy, it does have some advantages. Editing is simplified because the images in a series of slides can be arranged in any order without the need for expensive and time-consuming cutting, splicing, and editing equipment. Flexibility in presentation is easy because the individual teacher can omit some slides, can add others of his own if he has some, and can hold an image on the screen as long as he chooses if he wants to clarify a point or answer a student's question. Best of all is the sharpness of the image of a 35mm transparency, the ease with which it can be projected to any size required, and the degree of close-up magnification that can be achieved with the use of a macroscopic lens. We decided to use 80-capacity carousels, as slides tend to jam in larger-capacity carousels.

IN PRODUCTION

The first and most obvious question in producing a slide-and-sound show is to ask which comes first - the script or the slides? There are advantages in using either order. The module on the general catalog, microforms, and government documents (Program One) began with a prepared script. This provided a ready-made shot list for the photographer (from Photo Services) to set up and shoot the slides quickly. The modules on the reference room (Programs Two and Three), by contrast, began with a rough shot list in the director's hands, which allowed for greater flexibility and better visuals as various alternatives presented themselves. (The contrast here is not unlike the contrast between the old well-made script of the 1930's documentaries and the improvisational cinema-verite techniques of the 1960's.) The main disadvantage in having no advance script was that more set-up time was needed, and more retakes were necessary than in the pre-scripted approach.

There was a similar contrast in the scripting. Programs One and Three used the single-voice "authority" throughout, while Program Two used a teacher-student dialog, in hopes of a more lively presentation of the difficult material being presented. Again, the latter approach had disadvantages, in that a certain number of slides had to be "establishing shots" identifying the teacher and the students who were engaged in the dialog. In short, the aim of a more engaging and dramatic presentation can be achieved at additional cost in expendables (set-up time, retakes, etc.) and loss in informational economy (minimum number of slides to make each a coherent statement).

In all modules, however, certain limits to the sound-and-slide medium soon presented themselves. The amount of script per slide seems to reduce itself to a ratio of about 5 to 15 seconds of script per slide, depending upon the richness of visual information contained in the slide. Holding one slide too long taxes the viewer's attention and receptivity to the total statement.

There was also the realization, in viewing the rough-draft modules, that the script must have clear "cues" to the upcoming visual to keep sound-

and-slide working together. (This is easy enough in a simultaneous medium like film or videotape, where the speakers' lips or on-frame visuals cue the sound, but slide-and-sound is a recent wedding of two media that grew up quite independently of each other.) For example, any shot of a printed catalog card would have to be cued by some prominent words from it into the script; otherwise, the viewer's mind comprehending the printed content in the slide is distracted by a conflicting or non-relating voiced content.

One other realization, inherent in all production processes, from the freshman theme to the Hollywood epic, is that the time-budgeting was hopelessly optimistic. The rule of thumb here may be to budget twice as many weeks in the milestone chart for a project as seems realistic at proposal time. This seems especially true as the number of collaborators grow (in this case, three principals and a dozen other assistants); all of whom took time away from their regular jobs (teaching, library service, photo-production, etc.) to work on this particular project.

PRINTED MATERIALS

As with other "one-way" instructional materials, library instruction modules need immediate feedback from the students. This is best done with printed exercises, testing what the student has just absorbed from the module (examples appended) but also extending his or her comprehension by hypothetical research situations not specifically covered in the instruction presented in the modules. Such exercises include arranging Library of Congress call numbers as they would appear on the shelf, to finding a particular periodical in the Periodical Holdings File, asking whether it is stored on microfilm or in bound volumes and what the beginning date of publication is for the title being located. The obvious caveat in creating such exercises is that opportunities for "pooled" or copied answers must be engineered out. This can be done, for example, by asking the student to find a card in the Author Catalog headed with their last name (or the name nearest where their name might be in alphabetical sequence), then listing the author, title, and call number of the book.

The second-stage exercises, miniature research problems requiring a paragraph or so, can be similarly designed to achieve maximum individualization, such as asking the student to recommend the best sources of information on their favorite athlete, their favorite automobile, their favorite corporation, and so on. The dreary results on non-individualized research exercises are well-known among all teachers and need not be disscussed further.

On the other hand, the third-stage exercise, fully-researched papers with documentation, must be designed to engineer out possibilities for either the bought paper (possible now by term-paper-writing companies) or the re-cycled paper (coming from a fraternity house file). In some respects, both abuses seem warranted, if the teacher assigns the same topic every semester, or allows completely free choice in the topics; in such cases, the teacher gets what he or she deserves. Therefore,

third-stage exercises fall into the realm of the thematic (e.g. a political, social, economic, or cultural aspect of a Third World country) or the historic (e.g. what the world was like on your fifth birthday); such approaches have the dual advantages of unlimited sources of reference materials (no two students have to compete for the same materials) and unduplicated solutions (no two students can collaborate on researching their topic).

Unexpected dividends of this seed grant project have been new activities and approaches among the Public Services departments of the MSU Library, which in the past few years has developed its own research and documentation methods course (Library 2010). The conjunction of this new course and the seed grant project has brought some interesting results.

For example, the orientation activities in the Library have led to large ceiling hung signs identifying the various departments and rooms of the two main floors; threading diagrams have been placed on the microfilm readers; an oversized request slip has been taped onto the microform desk to maximize the self-instruction possibilities for new library users; and printed flow charts (example appended) on such topics as how to find a periodical have been mimeographed and placed in the Reference Room. It is obvious that this "algorithmic process" could be modified to program instruction in many other areas of the Library.

In addition to the half-dozen brochures already stocked and available in the Library (such as "Card Catalog Information," and "Reference Department,") which give floor plans, opening and closing hours, and so on, a new map of the Reference Room has been developed and posted to show locations of encyclopedias, atlases, abstracts, periodical guides, and newspaper indexes. Such relatively simple use of audio-visual aids is already paying real dividends in the Library in releasing the staff from repeating time-consuming lectures, identical inquiries, and unnecessary trips away from the Reference Desk.

IMPLEMENTATION AND EVALUATION

Since the stated purpose of this proposal was to develop a program for implementing an instructional program in the use of library materials for the freshman course, English 1102, the program will be a continuing cooperative effort between the MSU Library faculty and the English Department.

Three programs of forty-three, fifty-six, and sixty-four slides were prepared for use individually or for reinforcement of specific class assignments. Programs One and Two may be used singly or in sequence; Program Three combines much of the material of Programs One and Two. All three may be projected on a wall screen or used with a self-contained sound-slide device, such as the Caramate. Program One includes material on the card catalog, microforms, and government documents; Program Two explores reference works and procedures for using the material in the reference room; and Program Three includes the card catalog, in-

dexes, abstracts, periodical holdings, and basic reference works.

Although our primary goal was to prepare material for use in freshman English courses, the topics covered are basic to general library use and suitable for nearly all subject areas (history, biology, art, and so on). The programs will be housed in the MSU Library and will be available to faculty and students when not in use in the English 1102 program.

In the spring semester, 1976, Program Three will be used in the Library's program of instruction for English 1102. For the past two years, the Library has offered lectures on the use of Library resources to all faculty who teach English 1102. This has been a time-consuming task for the library faculty, due to the large number of sections (over 100) of this second-semester English course. Publicity for instruction in the use of the MSU Library offers the English instructor the option of using the slide-tape program prepared under this grant or of using a one-hour session of lecture, notebook, and transparencies.

As described above, several exercises were developed to be compatible with the instruction offered in the programs. These exercises are shown in Appendix A. They will be given to the English classes to re-enforce the material and sources cited in the programs. Exercise One asks sample questions and then provides the name of the best source in which to locate each answer; Exercise Two asks questions which require the student to determine the best source to use in locating the desired answer. A map of the reference room and an aid to finding periodicals also have been prepared. Shown in Appendix B, they are available for students to use with the two exercises.

Evaluation of the program will be conducted by giving an evaluation form, Appendix C, to faculty who bring their classes to the library to use these programs. The completed evaluation forms will be returned to the library. Students will be asked to give advantages and disadvantages of the programs. The results of the evaluations will be used by the MSU Library to improve this program and act as a guide in developing future media programs. If faculty and student evaluations are satisfactory, expressing an interest in this type of instruction, and the library faculty can see measurable improvement in library use, the MSU Library will attempt further development of media programs on the use of the library and its resources.

RECOMMENDATIONS AND CONCLUSIONS

We see the need for in-service education for this sort of undertaking. As part of the seed grant enterprise, Instructional Services should sponsor a workshop for current and would-be grantees. Photo Services could explain what is available from its office and the pros and cons of various technical options - which film, what set-up, lighting, lenses, formats, etc. - and show some good and bad examples of slide-and-sound or other A-V shows. Someone from Speech and Drama, WKNO, or Learning Resources could do something similar for the audio side - pros and cons, pitfalls, options, what to aim for, good and bad examples, what is avail-

able and where. The kind of piecemeal and sometimes crash-course learning we have gone through should be forestalled, prevented, made unnecessary, if possible; grantees should not have to repeatedly seek similar answers to similar questions.

Similarly, we feel that someone should also talk to grantees about measurement. If, for example, a team wants to do a rigorous experimental project to prove that Group A (e.g. videotape approach) learned more than Group B (conventional approach), then it would be good to learn what such a project entails, what measurement approaches and test instruments would be used, who is available on campus for consulting services, how would access to computer facilities be secured, and related information.

Above all, we feel that the kind of people who are interested in curricular innovation in general, and perhaps audio-visual approaches in particular, should be brought together to compare notes and learn from each other.

We appreciate the opportunity to have this help in funding library-instruction materials. This seed grant has certainly begun to bear fruit in this important area of undergraduate research and documentation methods.

EXERCISE ONE

1. Who was "Pymalion" in classical mythology?
   See Crowell's Handbook of Classical Mythology.

2. Where can you find the pronunciation, location, size, population, and brief history of the Ogasawara Islands?
   See Webster's New Geographical Dictionary.

3. Where can you find a brief history of nearly 80 sports, along with lists of champions and their records?
   See Menke's Encyclopedia of Sports.

4. Name a statistical source that gives consumer price indexes over a period of several years in selected U.S. cities.
   See Statistical Abstract of the U.S.

5. Where can you find the address, chief, officers, annual sales, number of employees, and products of Proctor and Gambill Co.?
   See Poor's Register of Corporations, Directors and Executives.

6. Give the address, purposes, publications, chief officer, and number of members of the American Civil Liberties Union.
   See Encyclopedia of Associations.

7. Where can you find a list of U.S. Senators and Representatives, along with their home and Washington addresses?
   See Official Congressional Directory.

8. Name some colleges and universities offering degrees in mortuary science.
   See The College Blue Book.

9. How can you locate pictures of leprechauns?
   See Vance and Tracey's Illustration Index.

Appendix A
LIBRARY OF CONGRESS CLASSIFICATION SYSTEM

A	General Work -- Polygraphy
B	Philosophy -- Religion
C	History -- Auxiliary Sciences
D	History and Topography (except America)
E-F	America
G	Geography -- Anthropology
H	Social Sciences
J	Political Science
K	Law
L	Education
M	Music
N	Fine Arts
P	Language and Literature
Q	Science
R	Medicine
S	Agriculture -- Plant and Animal Industry
T	Technology
U	Military Science
V	Naval Science
Z	Bibliography and Library Science

To illustrate subdivisions under the Library of Congress plan, P represents language and literature, PQ stands for Romance literature, and the numbers PQ6001-8929 are reserved for divisions of Spanish literature, thus providing immense opportunities for a detailed classiff-cation scheme for libraries with extensive holdings in the field.

A special aspect of library classification is the author number or "Cutter number" (named for its inventor) added to the subject classification.

10. Give a brief biographical sketch about the author Shelby Foote, including information about his education, career, and writings.
    See Contemporary Authors.

11. What do the initials "NSPCA" stand for?
    See Gale Research Co.'s Acronyms and Initialisms Dictionary.

12. What is the title of the poem whose first line begins, "Let the mad poets say what'er they please"? Name an anthology in which this poem can be found.
    See Granger's Index to Poetry.

13. Who said, "A little learning is a dangerous thing"? Where and when was it written?
    See Bartlett's Familiar Quotations.

14. Where can you find criticisms of William Faulkner's stories and novels?
    See Leary's Articles on American Literature.

15. Name some notable people born on November 30, and name the Scottish holiday that is celebrated on that day.
    See Hazeltine's Anniversaries and Holidays.

16. Locate a copy of Neil Simon's play, The Odd Couple.
    See Play Index.

17. Is Journalism Quarterly indexed and, if so, in which periodical index(es)?
    See Ulrich's International Periodicals Directory.

18. How can you locate reviews of the book, I'm OK, You're OK?
    See Book Review Digest.

EXERCISE TWO

LIBRARY EXERCISE

Student Name _____

1. Find a card in the author catalog headed with your last name, or, if your name is not there, with the name following where yours would come in alphabetical sequence. List the author, title, call number and location, if any.

2. Find a card in the title catalog headed with the title of any book of recent fiction or non-fiction. List the title, author, imprint (place of publication, publisher, and date of publication), call number, location if any, and number of pages.

3. Find a card in the subject catalog for a book related to your major or your greatest personal interest. List the subject heading under which you found the book, the title of the book, and any other subject headings listed at the bottom of the catalog card.

4. Arrange the following call numbers in the order that they would appear on the shelf (remembering that the "author number" is read as a decimal number). Indicate order by placing numbers in the parentheses under the call numbers.

P	PQ	PN	P	PQ	PN	P	PQ	PR
126	237	415	126	238	415	358	237	415
A5	D9	C513	G2	X8	C56	B62	F6	A1
( )	( )	( )	( )	( )	( )	( )	( )	( )

5. List the holdings and locations in the MSU Library for the periodical Christian Scholar. Also list the holdings and locations for any change of title.

6. Look at the card for the Education Digest in the Periodical Holdings File. Which volumes are bound and which are on microfilm? Where are the current issues located?

7. Find in an index a periodical article related to your major or special interest. List the name and date of the index, the subject heading under which you found the article, the title of the article, the name of the periodical that contains it, the volume number, page numbers and date of the issue in which the article is found.

8. Repeat question #7 using an abstract instead of an index.

9. For each of the five situations listed below, which of the following would be the best first source of information? (a) author catalog, (b) subject catalog, (c) periodical holdings file, (d) index or abstract.

   1. ( ) You need to find a copy of the short story The Secret Life of Walter Mitty. You do not find this title listed in the card catalog but think that it might be contained in an anthology of short stories.

   2. ( ) You want to find all the books in the MSU Library by Theodore Roosevelt.

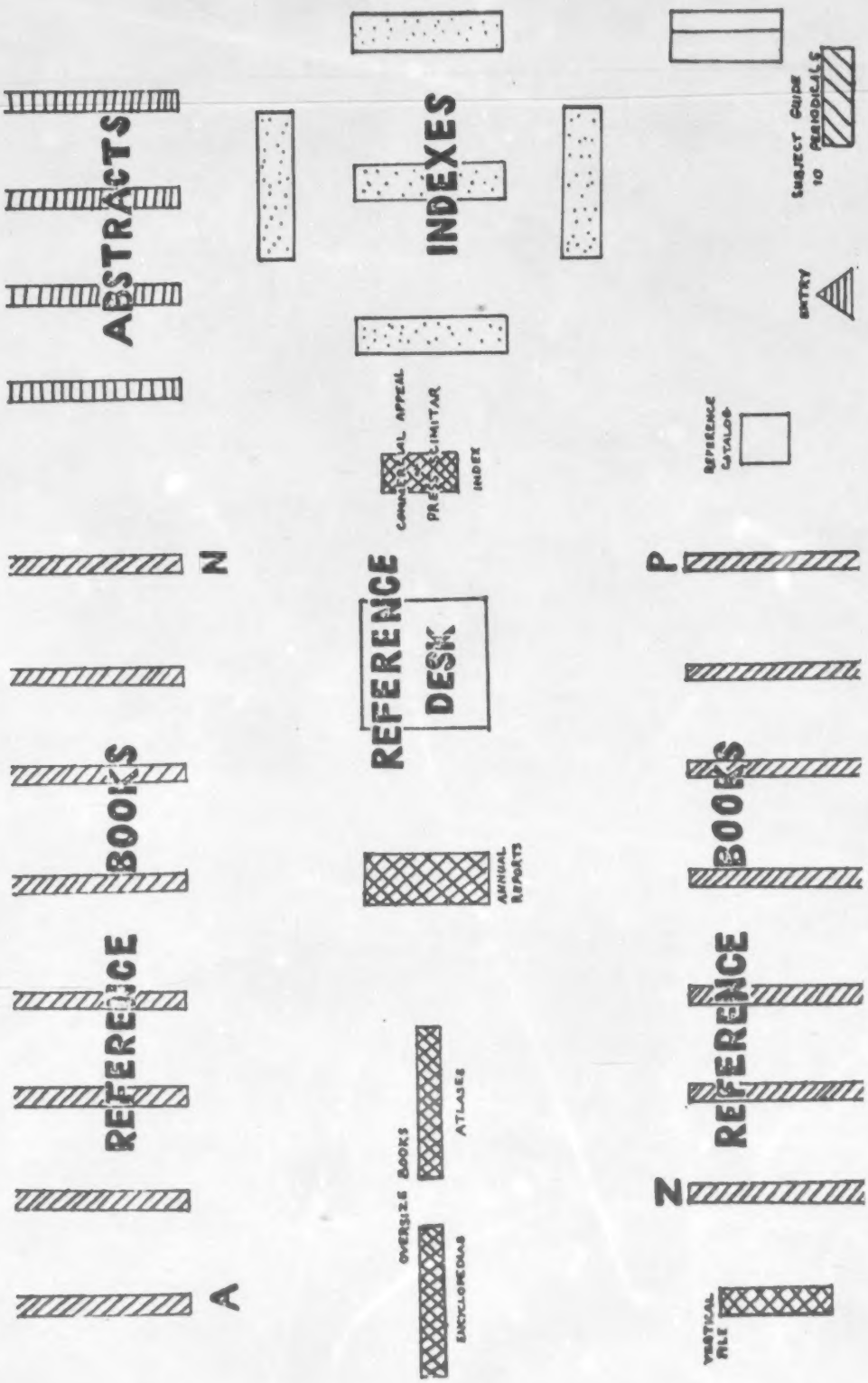
   3. ( ) You need to compile a list of periodical and newspaper articles on the seizure of the U.S. container ship Mayaguez.

   4. ( ) You want to know what books the MSU Library has on Islamic art.

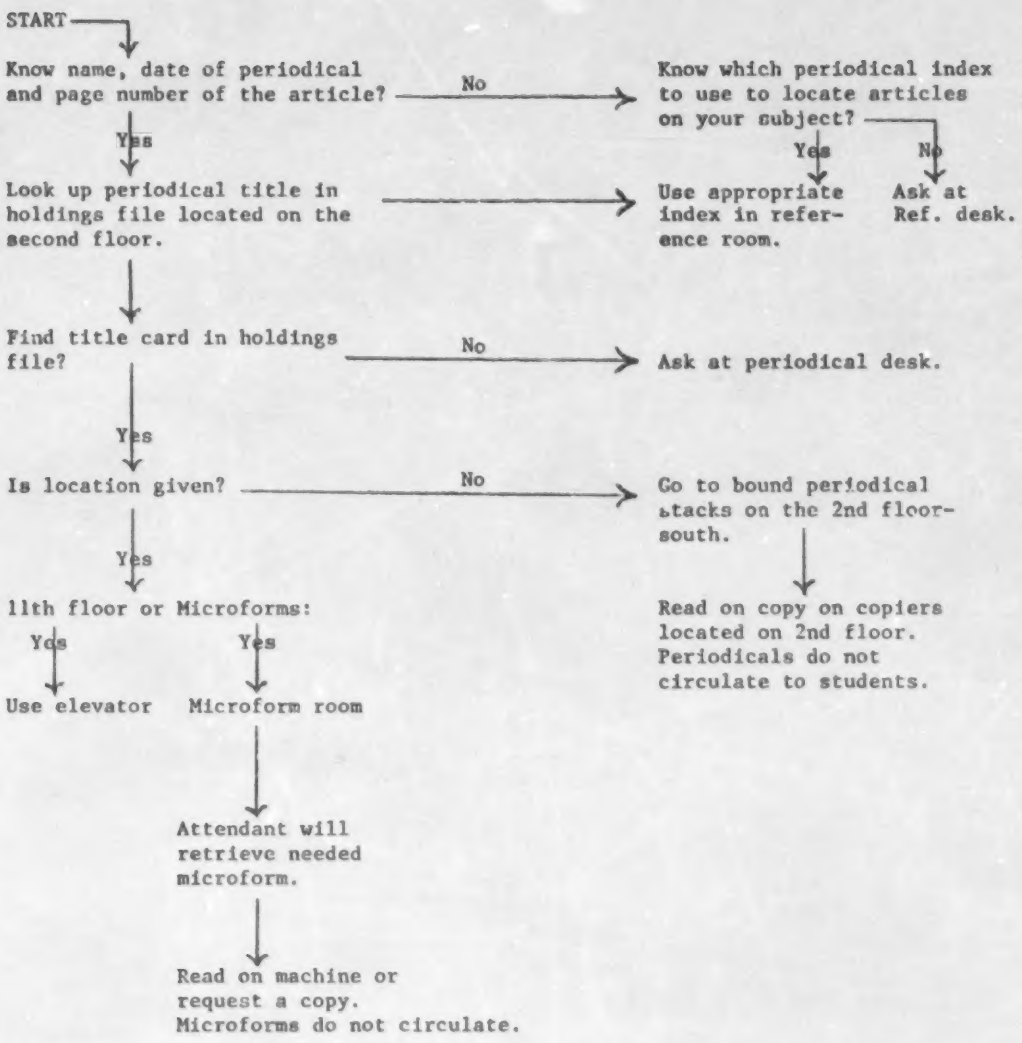
   5. ( ) You need to know if the MSU Library has Volume 1 of the Saturday Evening Post.

10. Locate on microfilm the New York Times for the date of your birth. List the headline and two front page story captions.

APPENDIX B


ABSTRACTS
INDEXES
SUBJECT GUIDE TO PERIODICALS
ENTRY
REFERENCE DESK
REFERENCE CATALOG
CUMULATIVE APPEAL PRELIMINAR INDEX
ANNUAL REPORTS
REFERENCE BOOKS
A
N
P
Z
OVERSIZE BOOKS
ATLASES
ENCYCLOPEDIAS
VERTICAL FILE

HOW TO FIND A PERIODICAL IN THE LIBRARY


START
Know name, date of periodical and page number of the article?
No
Know which periodical index to use to locate articles on your subject?
Yes
No
Yes
Look up periodical title in holdings file located on the second floor.
Use appropriate index in reference room.
Ask at Ref. desk.
Find title card in holdings file?
No
Ask at periodical desk.
Yes
Is location given?
No
Go to bound periodical stacks on the 2nd floor-south.
Yes
11th floor or Microforms:
Read on copy on copiers located on 2nd floor. Periodicals do not circulate to students.
Yes
Yes
Use elevator
Microform room
Attendant will retrieve needed microform.
Read on machine or request a copy. Microforms do not circulate.

Current and unbound issues of periodicals are located on 2nd floor - north.

APPENDIX C

EVALUATION LIBRARY INSTRUCTION - SLIDE - TAPE PROGRAM

1. Did the instruction cover material that is relevant to your assignment?

   _____

   If no, explain briefly._____ _____

   _____

   _____

2. What other material would you like to have included in the slide program?

   _____ _____

   _____ _____

3. Do you consider this method of presentation effective?

   _____

4. Do you prefer a classroom lecture given by a librarian?

   _____

5. Were the slides clearly visible to all students?

   _____

6. Is the amount of material adequate?_____

7. Is there too much information included for one session? _____

   If so make suggestions for deleting some of the material._____

   _____ _____

   _____

8. Did you use the follow-up exercises?_____

   _____

   If so, did you find them helpful to your students?_____

   Make suggestions for improving the exercises._____

   _____

9. Please make other suggestions and comments as to method of presentation, information included, and usefulness for your English classes.

   _____

   _____

DEVELOPING CASE PROBLEMS AND COMPUTER PROBLEMS FOR USE IN MANAGERIAL ACCOUNTING AND COST ACCOUNTING COURSES

L. Gayle Rayburn, Department of Accountancy

The purpose of the project was to stimulate the students into thinking about ways in which they could apply cost concepts. This in turn would make the undergraduate managerial and cost accounting courses more meaningful and interesting through the use of cases for which the student undertakes to provide solutions. It is felt that all too often accounting students get the impression that their jobs consist only of performing the normal routine steps of the accounting system. They fail to realize that there are more rewarding cost analysis assignments, both to the organization and also to them personally, if only they will look for them. Often they get so bogged down in meeting operational deadlines, they cannot and do not look for cost savings. The project undertook to design cases that point out areas which exist in all organizations where there are usually numerous opportunities for improvements, and in turn, cost reductions available.

Previously, managerial cost accounting students were limited to solving simple problems which appear in their textbook. On their student evaluation forms, many indicated that the course could be improved by adding case material. There are a few case books available in the area of cost accounting but these are designed for the graduate level. These would be most difficult to solve for the cost accounting student with his limited background. The cases designed in this project were short enough that a good link could be made with the necessary accounting theory they must learn. The cases were designed to provide as much analysis flexibility to the student as possible while incorporating the pedagogical objectives of the instructor into the design.

Without a doubt the computer is an integral part of today's accounting world. It was felt that accounting students on this level should be prepared to understand the nature and purpose of the computer. They should further view it as an effective tool of their craft and be able to use it for simple cost accounting applications at this level in their development and education. Another purpose of the project was to expose the students to a computer application of managerial and cost accounting. It was felt that in designing the computer problem one should operate on the premise that the students did not need a background in

electronic data processing to work the computer problem. Instead, the necessary information could be given in the cost accounting class.

DESCRIPTION OF SETTING

The project was initially conducted in two cost accounting courses which involved around 70 students directly. However, the computer and case problems that were developed can be used in both managerial and cost accounting courses. There are approximately 150 undergraduate students enrolled in sections of these courses each semester. These problems can be refined or used as they are for these courses each semester. In addition, refinements can be made to make the problems more complex so that they can be used in the graduate managerial cost accounting courses.

PROJECT PROCEDURES

The cases were designed to involve the students in a useful degree of realism that is often difficult with other teaching techniques. The cases were developed in a series of stages. When the students encountered the first cases, a list of questions at the end of the material was provided so that a helpful transition from the problems in the textbook could be made. At the beginning stage, the purpose in the case was to acquaint them with a typical business situation and guide them to the areas in special need of attention.

The subsequent cases written were designed to raise issues and provide material with which to analyze and deal with these issues. Their purpose was to put the student in the position of having to analyze the real issues himself and then arrive at a decision that would be feasible in the actual situation.

The cases that were written to be used near the end of the course did not list questions at the end as a part of the case requirements. It was felt that this would be an effective way of promoting the learner's growth. When students face a case without questions, it challenges them to project themselves into realistic conditions of uncertainty and pressures so that they can formulate a sound course of action without prompting.

The emphasis was on finding the right questions rather than the right answers. Such important questions as: "What is the problem? What are the appropriate criteria for various alternative solutions?" were discussed. A reasonable variety of approaches to enliven the classroom atmosphere and stimulate learning were used. The objective was to lead to discussions in class that go far beyond the interests of many students. The brighter, more experienced students were encouraged to probe the case and technical area more thoroughly.

Even though all accounting majors are required to take an introduction to data processing course, that course is primarily a programming course.

Few, if any, direct accounting applications are encountered. In this project a computer program was developed so that the student was exposed to a cost allocation problem. The computer problem involved assigning direct cost to production and service departments. The service department costs were then allocated to the production departments on such bases as number of employees, square feet and labor dollars. The students had to choose the appropriate basis for allocation.

RESULTS OBTAINED

As a result of better preparation on the students' part, class discussions were more thorough and rewarding. The process of problem solving inherent in the case method has much in common with that encountered in the real world. Group problem solving is a central, critical activity in business organizational life; decision making is increasingly becoming a product of the total group rather than the work of one individual. The steps of problem solving in the real world are rarely performed in any fixed order nor is one subactivity completed before the next is considered. Often the decision making process is a series of successive suggestions about what may be done. With each step in the problem solving process, clarity and focus is increased until a definition of the problems and a solution is made.

By exposure to this process students achieved a better comprehension of the more complex accounting issues and a more lively and realistic grasp of what variations in the critical variables will do to the overall results in particular case situations. Careful attention was given to poor analysis in which important variables were overlooked or where the interrelationship of certain factors was not appreciated.

Much of the superficiality in case analysis is attributable to inattentive reading and deficient grasp of the meaning. Since this is particularly true with respect to accounting figures, students were asked to explain the financial statements, ratios, and graphs in detail. The less quantitatively oriented students achieved a greater understanding of numerical aspect of cost accounting concepts through this process. In addition there was an increased confidence on the student's part that he had reached the most appropriate solution to the case problem. He had a more positive attitude toward the value of the course and a deeper understanding of the accounting concepts involved.

Another outcome of this use of case analysis was a change in the class discussion mix. Students saw that they must be willing to be open with each other and feel free to offer their suggestions without feeling personally threatened by others rejecting their suggestion. They learned to pay attention to each other rather than to be preoccupied with their own emotional need for status, attention, or favor with the instructor. It was felt that students learned much more than they had previously with more traditional techniques.

CONCLUSIONS

There is ample evidence that the case method of teaching is capable of

producing dramatic learning outcomes. The students are given an opportunity to increase their leadership ability by gaining experience in making decisions concerning the solution to complex problems. In addition they learn how to communicate these decisions clearly and persuasively. One objective of the case method is to give the student practice in facing new problems and in deciding how to approach them.

Resolving a case problem is exciting and interesting to participants. While it is recognized that formal education is still a process of distributing basic information and facts that set the stage for later employment, the case method provides a link with the operational realities of the business world. The student must be exposed to the rigors and pressures necessary in assimilating data through the normal lecture, reading, and case analysis.

The project director feels that cases are useful in getting students individually and personally involved with analysis, insight and decision making about real issues that require managerial attention. Examples in the cases can impart knowledge about real business world situations that are often not covered in lectures. Cases can show how someone else incorrectly dealt with the issue and show the outcome of this erroneous action.

FOLLOW-ON ACTION

Additional cases are being written that illustrate areas which are often overlooked in cost control applications. They are designed to show the students how much expense can be saved simply by installing a control technique. Behavioral aspects of accounting are included which reveal such things as the reaction people make to repeated failure. The fact that accounting reports are often designed to reinforce failure is emphasized.

Cases are also being written which show how the total ideas and philosophies which managers bring to the work environment directly affect the success of the business. For example, if managers of small and middle size firms believe that they should only "supervise" and not actually engage in the production if needed, this attitude is harmful to the firm's profitability. This is especially destructive if the company is faced with a tight cash flow and the manager is needed in production. The students are encouraged to realize the full importance of goal congruence.

PART V

SIMULATION AND GAMING

INTRODUCTION

Simulation can be undertaken in a very large number of situations and at a wide variety of levels of complexity. In many instances simulation is used to afford experience in which "real life" experiences would be costly in terms of resources, or time, or would involve unacceptable risks. Normally, the simulation of a situation captures certain characteristics of the real situation which are thought to reflect the essence of the situation and yet eliminate the undesirable aspects of it. Games are often simulations which have a competitive aspect. The individuals participating in a game may participate as individuals or they may form a team which participates against another team. As an alternative, the individual or the team may compete against some pre-established standard of excellence. In virtually all instances of simulation and gaming there are decisions to be made by the participants, and sooner or later the results of these decisions become known to them. To the extent that these results are representative of results that would occur with a high degree of probability in the real world, the participants may profit and learn from their experience in an essentially non-punitive environment.

Many simulations require only verbal directions and a simple set of written or spoken rules. Other simulations require sophisticated computer programs and equipment. In this later category are such simulations as qualitative chemical analysis, wherein students, or other participants, carry out standard laboratory exercises. The student may be assigned an "unknown" by the computer and may be given a choice of several approaches to initiating the process of identifying the unknown. The results of his action, including color images or written material, are presented to him, and he again selects an approach to the solution of the problem. This process continues until the identity of the unknown is discovered. Clearly there are many opportunities for instruction as well as for evaluation of performance in such a simulation. In addition, many more simulated exercises can be accomplished than is possible in the same length of time in the standard laboratory situation.

The support to the Markus and Baltus project that was provided by the small grant program played only a small part of the establishment of the Simulation and Gaming Laboratory at Memphis State University. At the time of the application for the grant, plans for the Simulation and Gaming Laboratory were almost complete. There remained, however, a number of questions which the designers of the laboratory felt could best be answered by observation of on-going laboratories of the same type and from detailed conversations with personnel at the laboratories. Perhaps the major contribution of the paper by Markus and Baltus is to be found in the identification of these questions and answers that were arrived at as a result of their visits to the various simulation and gaming laboratories. The background information concerning simulation and gaming, together with the rationale for the Memphis State University Simulation and Gaming Laboratory also is worthy of note.

AN ON-SITE STUDY OF SIMULATION AND GAMING LABORATORIES

Frank W. Markus & Dale F. Baltus, Educational Administration & Supervision

How useful are studies, programs, and research efforts conducted in one part of a university to the total organization and to similar organizations and sub-organizations in other locales? Is it possible to really benefit by the experiences of others or do the environmental pecularities negate any serious transferability? These are the basic questions treated by this paper.

The On-Site Study of Simulation and Gaming Laboratories was designed to answer the above questions and to learn from the trials and tribulations of others. While the final product - namely, the operation of the Laboratory itself, will provide the necessary evaluative data it was felt that by reporting the sequence of project events in chronological order, the reader might have the serendipitious opportunity of "participating" in one phase of the establishment of a Simulation and Gaming Laboratory (SGL).

The paper is therefore written as follows. The "Nature and Purpose of Simulation and Gaming in Educational Administration" provides a brief theoretical background which is followed by the proposed objectives of the SGL at Memphis State University. The stated objectives lead to the development of some basic questions - questions, it is suggested, that can best be answered by on-site visitations. The rationale for site selections is identified and subsequently observations and interviews are conducted at two SGL's plus the National Simulation and Gaming Conference. Evaluation of the effort plus the implications and conclusions round out the final portions of this paper.

BACKGROUND

Nature and Purpose of Simulation and Gaming in Education

The notion of simulation or gaming activities for instructional purposes is not a new idea. There is evidence that the modern version of the ancient game of chess may have been used as an instructional tool for teaching military tactics as early as the 6th century. In the 18th and 19th centuries the Prussians made extensive use of chess games as a teaching technique to promote the understanding of military movements. However,

it has only been in the past fifteen years, that simulations or gaming activities have experienced renewed attention - attention that seriously examines games as instructional devices with definite potential for stimulatory learning.

The development of simulations and games also meets student concerns for curriculum relevancy. Students are desiring learning experiences that will enable them to more closely grasp the reality of social, political and economic concepts as they pertain to complex organizations and institutions. It is increasingly difficult to systematically place students in situations where they actually experience the role and function of the jobs toward which they aspire. Simulations and games hold promise as the next best thing to the real experience and thus may be viewed as an intermediate step toward actual involvement. Clearly related to the intermediate step is the fact of increasing instructional costs, particularly, those associated with field experiences, such as, clinical activities or internships. Relevant and well developed simulations may provide an alternative for these expensive activities while still maintaining the reality factor deemed so essential to university based educational programs.

An underlying assumption concerning SGL experiences must be noted. That is, simulation activities constitute a microcosm of life itself and, thereby, manifest the complex inter-relationships inherent in a social system. It is by virtue of this continuing belief that much of what was noted above has relevance and applicability.

Simulation Games and Educational Administration

Some sixteen years ago Culbertson (1960) noted several apparent advantages for using and developing simulated materials for preparing school leaders. He pointed out that the materials were representations of actual administrative situations with a higher probability of the likelihood of desired transfer of training to on-the-job situations than with many conventional teaching materials and methods. According to Culbertson, simulated materials are useful in developing an ability to "see the total picture" in that the student examines specific problems in relation to their total context. Culbertson further points out that since simulation is a representation of reality, it behooves the instructor and the students to test "theory" against facts. Maxson (1974) found that simulated materials have potential for helping the student to develop insights about the relationship of ideals and constraints, about what should be and what is possible as well as insights about themselves. Finally, a Simulation and Gaming Laboratory can provide these insights without disproportionately increasing instructional costs, as related to field training in Educational Administrat' - and Supervision.

SIMULATION AND GAMING LABORATORY OBJECTIVES

As one result of a two year intensive analysis of the curriculum, the

Department of Educational Administration and Supervision (EDAS) recommended the development and implementation of a Simulation and Gaming Laboratory (SGL). It was felt that such a Laboratory would satisfy the dual needs of: (1) an additional and innovative instructional delivery system; and (2) complete the latter portion of the theory-practice mode in terms of providing a relatively threat-free environment at less instructional cost than the more traditional practicum/internship alternatives. The proposed SGL was designed to serve as the basis for a new course (EDAS 8370, Educational Administrative Performance Laboratory) taught Fall Semester 1974. Additionally, the SGL was developed as a vehicle capable of providing stimulated administrative and supervisory experiences for other EDAS courses. If the proposed SGL was successful, it was anticipated that the SGL would subsequently be equipped and organized to create games and simulations for other areas of the university.

The following SGL objectives represent a brief summary of the possible uses projected for the Simulation and Gaming Laboratory:

1. To serve as the basis for an introductory course in gaming and simulation.
2. To provide specified competencies, on a contract basis, for other EDAS courses.
3. To provide specified competencies, on a contract basis, for other courses in Education.
4. To provide specified competencies, on a contract basis for other courses in the University.
5. To provide specified competencies, to administrative groups from school districts desiring high level in-service training.
6. To serve as a final screening process for students prior to internship experience.
7. To serve as a final screening process for graduating students in Educational Administration and Supervision.
8. To prepare gaming and simulation materials for other departments of the University.
9. To prepare gaming and simulation materials for agencies and corporations in the Mid-South.

SIMULATION AND GAMING LABORATORY QUESTIONS

From the above listing, which was by no means exhaustive, it was concluded that the SGL had a great deal of potential. However, it was essential that the SGL be initiated properly and that the tasks assigned for the first year's operation be manageable. Priorities needed to be established and experiences from other SGL's gathered and analyzed in an effort to make the most informed decisions. Fortunately there were several outstanding SGL's in the country and an International Gaming and Simulational Conference was being held in Berlin, Germany during the summer of 1975. While the "Berlin" trip had been discarded as an option because of the expense and because of the need for observers to see SGL's in actual operation, nevertheless, additional games and simulations were being developed for presentation at that meeting. Furthermore, it was

anticipated that these gaming and simulation materials would receive on-site evaluation with appropriate samples collected for use at MSU. Trips directly to the SGL's would accomodate the above as well as provide, in the most expeditious manner, some answers to the following questions:

1. What is the most feasible approach to initiating an SGL and what priorities have been established?
2. How is the SGL funded for its various activities? (e.g. resident, credit, continuing education and corporation clients)
3. How is the SGL organized? (i.e. full and part-time faculty, graduate assistants and secretaries)
4. What facilities are most appropriate for SGL's?
5. Can SGL's be operated on a seven day a week - 24 hour basis and if so, how?
6. Is security a problem in SGL's?
7. What are the minimum and optimum conditions for individual small group, and large group instruction in SGL's?
8. To what extent can the SGL serve as an off-campus "portable" lab?

ON-SITE VISITATIONS OF SGL'S

The original budget proposal provided $1,471.00 for trips to three outstanding University/SGL's by two faculty members in Educational Administration. However, $350.00 was all the funds available through the 1974-75 Seed Grant Program. While on-site visitations by a team were considered important from the verification, time, and materials aquisition standpoints, their value in light of the limited budget was questionable. Continuity and comparison of sites and site information necessitated that only one faculty member make the visitations. It was also decided that the initial visit should be to a university other than the University of Pittsburg because Pittsburg was also the location of the National Simulation and Gaming Conference, which was to be attended later. Verification, and visual comparisons thus became trade-offs for the direct face-to-face discussion with the same personnel originally planned for in the initial visitations to the three University/SGL's. Furthermore, a more informed decision could be made after the national conference regarding the selection of another University/SGL - provided that it was still feasible financially.

In addition to attending the National Conference on Simulation and Gaming, University/SGL's were visited at the University of Pittsburg and Duquesne University. Following this trip, tentative answers were developed in conjunction with the questions posed earlier. It was further decided that a second - but abbreviated trip could be made to the University of Minnesota. Upon the conclusion of this trip, the questions, original plans and visitation observations were compiled. This information is presented in Table 1.

TABLE I SIMULATION AND GAMING LABORATORY (SGL) --
PRE & POST VISITATION PLANNING STATEMENTS

QUESTIONS AND ORIGINAL PLANS[1]	VISITATIONS - OBSERVATIONS AND COMMENTS
1a. The most feasible approach to initiating an SGL is to incorporate its initial phases as the lab sections of an advanced graduate course which focuses on specific Simulations and Games. In this way the staffing load is greatly reduced and the massive job of developing, organizing, and implementing activities can be shared with extremely competent students for mutual benefit.	Other than several SGL's which were funded through Federal Grants virtually all SGL's have been outgrowths of courses. For the most part, the SGL's were not even planned but resulted as serendipitious outgrowths of the course. There was considerable agreement expressed with regard to the approach being taken at MSU.
1b. The priorities that have been selected are as follows:	
Staffing - full time faculty with previous experience in SGL activities	Unanimous agreement on staffing approach at outset of SGL but with encouragement to involve other staff in the Lab during the early phases-- as a staff development project.
Students - specialist and doctoral level students on the MSU campus	Most directors favored the approach described except those at the University of Minnesota which stressed an "Organizational Behavior" emphasis with staff from throughout the University.
Curriculum - balanced program of commercially developed and staff-developed simulations and games. Major thrust - each student shall develop (and have published, a game or simulation.	Whatever the administrative budgeting process would allow--seemed to be the recommendations.
Credit - SGL available through credit courses only	Credit and contracts were expressed equally.
Equipment and Supplies - Emphasis on materials development and acquisition rather than equipment.	Two major points of view. The SGL's with heavy financing stressed sophisticated equipment such as computers, VTR's and Responder systems.

[1]Questions are inferred in "Original Plans" staement. A complete statement of the questions may be found in the section titled "Simulation and Gaming Laboratory Questions"

TABLE I (CONT.) SIMULATION AND GAMING LABORATORY (SGL) --
PRE AND POST VISITATION PLANNING STATEMENTS

QUESTIONS AND ORIGINAL PLANS	VISITATIONS - OBSERVATIONS AND COMMENTS
2. Initally the SGL will be funded only in terms of an allocation of space, equipment (files, cabinets, and chairs), supplies (paper, pencils, staples, etc.), plus a supply budget for odds and ends (old doors, boxes, discarded furniture, etc.). Personnel will be allocated only on the basis of enrollment in the basic residence-Lab course (EDAS 8370).	While specific budgeted amounts were seldom mentioned, it appeared that the original plans were fairly universal -- with the notable exception of those SGL's Federally funded. There was less emphasis on developing simulations and games with inexpensive and substitute materials.
Eventually the Lab will be available to continuing education students and to school district and corporation clients on a contractual basis.	Once established, most labs focused on the preservice student population although most SGL's are now expanding their client population - particularly as a result of decreasing enrollments.
3. In terms of organization, only full time faculty with previous simulation/gaming experience will be utilized in the SGL and the attendent course. As experience is gained, Graduate Assistants, at the Doctoral level who have completed the basic course, will be used as teaching assistants. No secretarial need is envisioned.	Similar approach at other SGL's with the exception of the Organizational Behavior emphasis at the University of Minnesota and consequently the absence of any doctoral students on staff. Also there was additional clerical assistance in this SGL.
4. The facilities most appropriate for SGL's are large, open, easily accessible spaces which are available on a seven-day a week basis for the twenty-four hours each day. The facilities should also be relatively free of security problems. There is no need to allocate type A classroom space - "basements, attics, large storage areas, etc." are satisfactory for the SGL.	SGL's were found to exist in all shapes and sizes and were available "during class and lab hours plus several other scheduled long periods" (three hour minimums). No labs were available twenty-four hours a day for seven days a week or anything approaching this flexibility. Space was traditionally classified as regular teaching areas. Apparently none of the SGL directors, that was interviewed, used the Lab from an environmental-learning by-doing point of view. The major reasons given for the traditional schedule were security and ease of administration and planning professors schedules.

TABLE I (CONT.) SIMULATION AND GAMING LABORATORY (SGL) --
PRE AND POST VISITATION PLANNING STATEMENTS

QUESTIONS AND ORIGINAL PLANS	VISITATIONS - OBSERVATIONS AND COMMENTS
5. & 6. The SGL will be operational on a seven day a week basis - twenty-four hours per day. The SGL will be staffed at a level commensurate with credit hours currently produced. Students will be given access to Lab at all times and will share responsibility for their actions and the actions of others. EDAS Faculty and GA's will work with security personnel to prevent any problems. One GA will be responsible for providing a means for sharing a limited number of keys.	As mentioned in earlier comments, the notion of a seven day a week - twenty-four hour a day SGL was an entirely new concept. While there was some agreement that programmed materials and individual student contracts were viable approaches presently used in SGL's, the projects involved were basically take-home in nature. Even when the student population was described as being relatively small in number and qualified at the advanced degree level the complete flexibility was not considered to be worth the risk regarding total campus security as well as the security for projects left in the SGL in an "already set-up-state."
7. The space available will determine the maximum class sizes. Large group instruction is feasible but requires additional development time. Therefore the focus will be on individual contracts from the basic course and from other EDAS classes and small group classes and activities.	Large instructional groups were not part of any SGL whereas individual and small group instruction were typical instructional formats. The maximum size small group was reported at fifteen students. Contracting for individual students in other classes seemed to be an idea that was not practiced but readily accepted.
8. Once the SGL has been successfully operated for a semester - plans will be made to transport those activities deemed feasible to other Graduate Centers.	All SGL's are on-campus-only facilities, although a game or a simulation was readily transported to a workshop location. SGL directors cited delivery, storage, retrieval, inventory and loss as factors that mitigated against off campus SGL's.

SUMMARY AND CONCLUSIONS

The following comments from staff and students in the first Memphis State Simulation and Gaming Laboratory (Baltus and Markus, 1975) should serve as a summary regarding the purposes of the laboratory and its initial evaluation:

1. "This unusual lab is the testing ground for many off-beat theories of education."
2. ". . . the simulation allowed students to see the difficulty of getting something done in a large organization."
3. "It (simulation) also attempts to show people how to retain their values without losing their composure."
4. ". . . the lab helps you in administration because it helps you communicate with people."
5. "Simulations provide good insight into administration, human relations, and business interactions in a non-threatening way."
6. "In there (the lab) anything can happen. . . All we want is a particular area where we can change it according to what happens in the outside world."
7. ". . . they (students) are experiencing what actually happens without the effects of losing."
8. "Students can use the lab anytime they are working on a project."

From the above comments it would seem that the first semester's offering of the Memphis State SGL was rather successful. The remainder of this section will be devoted to the most noteworthy summary and conclusion statements concerning the objectives and questions formulated prior to the visitations and previously stated in this paper.

SGL Objectives

While not all objectives were treated in this study, objectives one, two, five and six could be accomplished during the initial stages of operation, and hence they were the focal points. On three of these objectives, the SGL at Memphis State was found to be consistent in approach with other SGL's. However, objective two (providing specified competencies, on a contract basis, for other Department of Educational Administration and Supervision courses) was not presently practiced or being considered by other SGL's. In terms of positive responses received from other laboratory directors, this objective and those for future development stages (objectives three and four) should very definitely be implemented at Memphis State.

SGL Questions

Of the eight questions formalized for study and observation on the visitations, the answers to questions four, five, and eight (facilities, hours of operation, and transportability) were considered to represent differences worthy of mention.

Apparently the personnel of the SGL's interviewed were treating the fa-

cilities required more in the classroom sense rather than the changeability of the environment encountered by all administrators. With respect to this finding the initial plan will be followed, namely the utilization of any facility considered to contain the necessary space - regardless of shape, dimension and other aesthetic accouterments.

The responses regarding hours of operation was probably the most divergent from the plans developed for the SGL at Memphis State. While it is believed that eventually a seven day a week - twenty-four hour a day operation will be necessary, such will not be the case in the near future. Rather, a more moderate position will be taken in which the flexibility of access is maintained for most individuals. Hours will probably be from seven to eleven on week days, with a period of time also scheduled for Saturday mornings and Sunday afternoons.

Question number eight, dealing with transportability, was overwhelmingly "vetoed" by the respondents. The reasons have been sound and 180° change of position is called for - namely the SGL will not be transported to other centers or locations.

Finally the overall questions posed at the outset of this paper dealing with the degree to which organizations, sub-organizations and people are able to transfer and apply concepts in different settings must be answered in the affirmative. The visitations, interviews, and sample materials provided a great deal of information - information that has made a significant difference in the conceptualization, organization, and implementation of the Simulation and Gaming Laboratory at Memphis State University.

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